

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

TESLA, INC.,)
)
Petitioner,)
) IPR2025-00343
vs.) Patent No.
) 10,292,138
INTELLECTUAL VENTURES II)
LLC,)
)
Patent Owner.)
-----)

Tuesday, February 3, 2026
10:03 a.m.

Remote Zoom Deposition of GARY R.
LOMP, PH.D., held before Stacey L. Daywalt, a
Court Reporter and Notary Public of the
District of Columbia.

A P P E A R A N C E S:

(All appearances via remote Zoom unless noted.)

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-----I N D E X-----

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1 GARY R. LOMP, PH.D.,
2 called as a witness, having been duly sworn by
3 a Notary Public, was examined and testified as
4 follows:

5

6 EXAMINATION BY

7 MR. WILKINS:

8 Q. Dr. Lomp, can you state your full
9 name for the record.

10 A. Gary Raymond Lomp.

11 Q. Is there any reason that you cannot
12 provide truthful and accurate testimony today?

13 A. There is not.

14 Q. If you don't understand a question,
15 will you please let me know?

16 A. Yes.

17 Q. I know the answer to this from the
18 previous deposition.

19 But have you ever -- have you ever
20 been deposed before?

21 A. Yes, I have.

22 Q. How many -- approximately how many
23 times have you been deposed?

24 A. Close to a hundred.

25 Q. So you know these rules already, but

1 I'll make sure you understand.

2 You understand that everything that
3 we say is being recorded by the court reporter.
4 Correct?

5 A. Correct.

6 Q. Do you have any of the relevant case
7 materials with you?

8 A. Not open, no.

9 Q. Do you have any device around you
10 such as a smartphone or iPad where you will be
11 communicating with your counsel during the
12 deposition?

13 A. I do not.

14 Q. So you're aware that you're not
15 supposed to be conferring with your counsel
16 during the course of the deposition. Correct?

17 A. Correct.

18 Q. So I'm going to introduce an
19 exhibit.

20 Do you have access to the box folder
21 that I sent?

22 A. Yes.

23 I already downloaded the contents
24 that were in there.

25 Q. Perfect.

1 A. And I have them on my screen.

2 Q. So I'll refer you to Exhibit 2007.
3 (Exhibit 2007, previously marked for
4 identification.)

5 THE WITNESS: Okay. I have that
6 open.

7 Q. Do you recognize that exhibit?

8 A. Yes.

9 Q. And what is that exhibit?

10 A. This exhibit is a declaration of
11 Dr. Gary Lomp, myself, in support of Patent
12 Owner's response.

13 Q. And I want you to refer to that
14 declaration anytime you wish today during the
15 course of the deposition. Okay?

16 A. Thank you. Yes.

17 Q. Is there anything you would like to
18 correct in your declaration at this time?

19 A. No, there's not.

20 Q. I also want to -- I would like you
21 to open Exhibit -- excuse me -- 1001.

22 (Exhibit 1001, previously marked for
23 identification.)

24 THE WITNESS: It's open.

25 Q. Do you recognize that exhibit?

1 A. Yes, I do.

2 Q. That is the '138 patent. Correct?

3 A. Yes, that's right.

4 Q. So if I refer to "the '138 patent,"
5 you understand I'm referring to Exhibit 1001.
6 Correct?

7 A. Yes.

8 Q. Could I direct you to Column 2 of
9 Exhibit 1001.

10 A. Okay. Let me get there.

11 Q. Okay. I'm going to shut my blinds.
12 The sun is creating a glare. Excuse me for
13 just a second.

14 All right. Do you see in Column 2
15 where UMTS is referenced, for example, in
16 Line 21?

17 A. Yes, I see that, mm-hmm.

18 Q. Are you familiar with UMTS?

19 A. Generally, yes.

20 Q. Are you also familiar with CDMA?

21 A. Yes, I am.

22 Q. Are you familiar with spreading
23 codes?

24 A. Yes, sir.

25 Q. Does UMTS use spreading codes?

1 A. In some of the specifications, yes.

2 Q. Does UMTS use spreading codes on the
3 uplink?

4 A. Yes.

5 Q. Does spreading codes allow different
6 users to transmit data at the same time?

7 A. Yes.

8 Q. Does the data rate of a CDMA
9 transmission depend on the spreading code used?

10 A. It can or it may not.

11 It depends on the configuration of
12 the system.

13 Q. When does the data rate depend on
14 the spreading code used?

15 A. Well, for example, there are systems
16 in which the spreading codes used for different
17 data rates are distinctly assigned to those
18 data rates.

19 Q. Are spreading codes and UMTS
20 considered to be a communication resource?

21 A. Yes, I think that's a correct
22 understanding.

23 Q. Does the UMTS standard specify a
24 finite number of spreading codes?

25 A. I believe generally it is a finite

1 amount, yes.

2 Q. Can I direct you to Column 3 of
3 Exhibit 1001, the '138 patent.

4 A. Okay. I have it.

5 Q. And do you see where codes are
6 referenced in Line 5, for example, in reference
7 to CDMA?

8 A. Yes, I see that line.

9 Q. Are the codes here -- referred to
10 here spreading codes?

11 A. Yes, I think that's correct.

12 Q. Would an allocation of spreading
13 codes to a mobile terminal be considered an
14 allocation of resources?

15 A. It can be, yes.

16 Q. It can be or it is?

17 A. It can be an allocation of resources
18 or it could be part of an allocation of
19 resources.

20 Q. Okay. Could I have you open
21 Exhibit 1005.

22 (Exhibit 1005, previously marked for
23 identification.)

24 THE WITNESS: Okay. I have it open.

25 Q. Do you recognize Exhibit 1005?

1 A. Yes.

2 Q. And in this proceeding, Exhibit 1005
3 is also referred to as Eckert. Correct?

4 A. Yes.

5 Q. So if I refer to "Eckert" during the
6 deposition, you understand I'm referring to
7 Exhibit 1005?

8 A. Yes.

9 Q. So just for your reference, I'll --
10 could you refer to Paragraphs 3 and 4 in the
11 Background section.

12 A. (Complying.)
13 Yes, I have those.

14 Q. Eckert's teachings are in the
15 context of UMTS communication systems.
16 Correct?

17 A. He does refer to UMTS here in
18 Paragraph 3, yes.

19 Q. And Eckert is discussing the
20 protocol layers of UMTS, correct, for example,
21 in Paragraph 6?

22 A. (Reviewing document.)
23 Yes.

24 Q. Could I refer you to Paragraph 12.

25 A. I have Paragraph 12.

1 Q. Do you see where Eckert refers to an
2 enhanced dedicated channel?

3 A. Yes, I do.

4 Q. And that's abbreviated E-DCH?

5 A. Correct.

6 Q. Would an E-DCH channel be expected
7 to have associated spreading codes?

8 A. As part of the UMTS WCDMA
9 specification it would, yes.

10 Q. Would an E-DCH be expected to have
11 available a finite number of spreading codes?

12 A. Yes, it would be expected.

13 Q. Could I refer you to Paragraph 15 of
14 Eckert.

15 Let me know when you're there.

16 A. I have that.

17 Q. So Eckert recognizes that a mobile
18 device may have multiple priority queues.
19 Correct?

20 A. Yes, I think that's fair.

21 Q. And these queues share the E-DCH.
22 Correct?

23 A. Yes, that's right.

24 Q. And according to Eckert, and in
25 particular this Paragraph 15, the details of

1 how priority queues share an E-DCH are still
2 being worked out. Correct?

3 A. At the time of the writing, I take
4 it that's what he's saying here, yes.

5 Q. Yes, that's what I meant.

6 At the time Eckert was written, it
7 was still being worked out. Correct?

8 A. Yes. Evidently, yes.

9 Q. Does Eckert address the problem of
10 how priority queues share an E-DCH channel?

11 A. I think that's part of his
12 discussion, yes.

13 Q. And you're familiar with Eckert's
14 weighting of priority queues. Correct?

15 A. He does address that, yes.

16 Q. And Eckert's weighting values are
17 one way of addressing the problem of how to
18 select data for transmission from priority
19 queues. Correct?

20 A. I think that that's -- I think
21 that's correct, yes.

22 Q. Are you familiar with the concept of
23 a MAC-e sub-protocol layer --

24 A. Yes.

25 Q. -- in the context of Eckert?

1 I'm sorry to interrupt. Let me say
2 that again.

3 Are you familiar with the concept of
4 a MAC-e sub-protocol layer in Eckert?

5 A. I understand Eckert's discussion of
6 the MAC-e sub-protocol layer, yes, I do.

7 Q. And a MAC-e sub-protocol layer
8 produces MAC-e PDUs. Correct?

9 A. Yes.

10 Q. Or protocol data units. Correct?

11 A. Yes.

12 Q. Are you familiar with the concept of
13 a MAC-d sub-protocol layer?

14 A. Let me reflect on that for a moment.
15 I think he uses that terminology
16 here.

17 Q. If it helps, you can refer to, for
18 example, Paragraph 168 --

19 A. Okay. Thank you.

20 Q. -- and so on.

21 A. (Reviewing document.)

22 Let me just take a look at 168 as
23 well. (Reviewing document.)

24 Okay. I see those references.

25 Q. So you are familiar with the concept

1 of a MAC-d sub-protocol layer in Eckert.

2 Correct?

3 A. Yes, that's correct.

4 Q. Does Eckert address the problem of
5 how to fill a MAC-e PDU from multiple MAC-d
6 priority queues?

7 A. Give me a moment, please.

8 (Reviewing document.)

9 Can you repeat the question, please.

10 Q. Sure.

11 Does Eckert address the problem of
12 how to fill a MAC-e PDU from multiple MAC-d
13 priority queues?

14 A. He addresses the multiplexing of
15 MAC-d flows into the MAC-e protocol layer, and
16 I guess you could say that is addressing the
17 problem.

18 He doesn't -- I don't think he
19 refers to it as "the problem," but he does
20 address that process.

21 Q. So Eckert addresses the process of
22 how to fill a MAC-e PDU from multiple MAC-d
23 priority queues?

24 A. Yes, he does, I believe.

25 Q. Could I refer you to Paragraph 121

1 of Eckert.

2 A. I have it.

3 Q. Do you see where the different types
4 of data are assigned different weighting
5 values?

6 A. I see that in the example that he
7 describes in that paragraph, yes.

8 Q. How would a mobile terminal know the
9 weight values to use for each of the types of
10 traffic?

11 A. It depends on the system.

12 Q. But in Eckert, how would a mobile
13 terminal know those values based on the
14 teachings of Eckert?

15 A. (Reviewing document.)

16 I believe that he recommends
17 transmitting them, but let me verify.
18 (Reviewing document.)

19 He gives a couple of different
20 possibilities.

21 In one possibility they are
22 signaled. In another possibility they're known
23 a priori from system configuration information,
24 I believe.

25 Q. So in the example where they're

1 signalled, that means the base station
2 signalled the weighting values to the mobile
3 terminal. Correct?

4 A. That would be correct.

5 Q. And you mentioned the -- I believe
6 you mentioned another option where they're
7 known a priori.

8 I believe you used the term
9 "a priori"?

10 A. Yes.

11 Q. And what do you mean by that?
12 Do you mean they're hard coded? Do
13 you mean they're sent when the link is set up?
14 What do you mean by "a priori"?

15 A. (Reviewing document.)

16 Well, I'm just referring to his
17 disclosure in Paragraph 118 wherein he says
18 that: "In this case, the weightings of the
19 data buffer storages in the MAC-e sub-protocol
20 layer are not explicitly signalled, but rather
21 the data traffic class is assigned to the
22 weightings of the cross-bonding priority queues
23 as stipulated previously, and in combination
24 therewith the data transmission bandwidths
25 provided which correspond to the priorities are

1 allocated."

2 So he doesn't say how they're
3 stipulated, where they're stipulated or when
4 they're stipulated, but he does say that
5 they're stipulated previously.

6 This is what I was referring to as
7 "known a priori."

8 Q. And so "the stipulated previously,"
9 is that explained here?

10 Or how would a POSITA understand
11 what possibilities "stipulated previously"
12 encompasses?

13 A. A POSITA would understand that they
14 could be understood from the specification of
15 the system, for example, like a 3GPP
16 specification as a primary example, and that
17 those numbers would be deliberated and
18 established in standardization and then agreed
19 upon and published.

20 Q. Okay.

21 (Simultaneous crosstalk.)

22 THE WITNESS: I'm sorry.

23 Q. I'm sorry. Go ahead. I didn't mean
24 to interrupt.

25 A. Oh, I was just going to elaborate

1 that once that information was integrated into
2 the design of the system, that those priorities
3 would be either hard coded or part of a soft
4 firmware load or something like that.

5 Q. So in that situation, there would be
6 no way for the base station to change the
7 weightings, correct, if they're hard coded?

8 A. In the system was operating in the
9 mode of non-signalled weightings, then
10 presumably they would not be able to be
11 changed.

12 Physically they might be able to be
13 changed by being in a different mode, but it
14 depends on the mode of operation.

15 Q. Where are these different modes that
16 you're referring to?

17 A. Well, he gives a couple of
18 possibilities here where the system could be
19 operating with signalled weights and without
20 signalled weights.

21 Conceivably a system could operate
22 in either of those modes and the modes could be
23 negotiated. I'm not saying that that's
24 necessarily what the specification says, but
25 it's possible in principle.

1 Q. Okay. Does Eckert provide that
2 detail, or you're explaining how "stipulated
3 previously" in 118 would be understood?

4 A. That's how I would understand
5 "stipulated" -- and how a POSITA would
6 understand "stipulated previously" to be
7 interpreted.

8 Q. Okay. Could I get you to refer to
9 Paragraph 204 of Eckert.

10 A. All right. I have that now.

11 Q. This -- according to Eckert, this is
12 a table of transport formats. Correct?

13 A. That is what he calls them, yes,
14 mm-hmm.

15 Q. Are there queue weighting values
16 linked to this table?

17 A. Not explicitly in the table.

18 Q. What do you mean by "not explicitly
19 in the table"?

20 A. The table is simply a list of -- let
21 me see if that table continues on the next
22 column. Yeah, it does.

23 So that table is a list of transport
24 format -- transport format possibilities that
25 in Eckert are available to be assigned or used.

1 Q. So how would the UE know what
2 weighting values to use based on this table?

3 A. Well, the weight -- the union would
4 know what amount of data to transmit based on
5 the selection from this table.

6 And the amount of data could be
7 considered an application of a weight.

8 Q. And what are the weight values that
9 are used according to Eckert linked to this
10 table?

11 A. I don't know that he explicitly
12 defines a weight value in connection with the
13 table.

14 I am saying as a POSITA reading this
15 disclosure and looking at this table and seeing
16 that the number of bits that can be transmitted
17 in the various selections that are available,
18 that one could construe the relative sizes of
19 the payloads, that is the transport block size
20 as the table is labelled. I think "TB" stands
21 for transport block.

22 The relevant sizes of those blocks
23 correspond, in principle at least, to the
24 weight being assigned to that transmission.
25 Greater weight meaning, for example, a higher

1 priority or a higher throughput associated with
2 the transmission corresponding to a greater
3 number of bits being transmitted in that
4 transmission.

5 Q. So is this table a table of
6 transport formats that a UE would select from?

7 A. Yes, I believe that's -- the
8 intention here, is for the UE to have access to
9 these transport formats or a subset of them and
10 to select -- under certain operations select a
11 transport format for each stream.

12 Q. So and this is an exemplary table
13 for three priority queues. Correct?

14 I believe there's a priority queue
15 No. 1, priority queue No. 2 and priority queue
16 No. 3.

17 A. That's my understanding.

18 Q. And for example, looking at the
19 table, transport format No. 1, no data is
20 transmitted from any of those queues. Is that
21 correct?

22 A. That's my understanding, yes.

23 Q. And then in transport format No. 2,
24 you would have a transport -- one transport
25 block from the first queue and no transport

1 blocks from either of the other queues.

2 Correct?

3 A. Correct.

4 Q. So in that case, the weight applied
5 to priority queue 1 would be a hundred percent,
6 and then it would be zero and zero for the
7 other two queues?

8 A. That's a rational interpretation,
9 yes. I agree with that.

10 Q. And likewise for transport format
11 No. 3, the weight value applied to priority
12 queue 2 would be a hundred percent and then
13 zero for the other two priority queues?

14 A. Correct.

15 Maybe we should use the term
16 "relative weight value" just to make sure we
17 understand that this transmission that's
18 controlled by these templates could be
19 occurring alongside other transmissions, which
20 then would be subject to consideration as to
21 the relevant weighting of those transmissions.

22 So just to be clear, this table when
23 it's operable should be regarded as providing
24 the relevant weights among the three queues
25 that are delineated here.

1 Q. So in some situations, the weight is
2 a hundred percent for priority queue 1 and in
3 some situations it's a hundred percent for
4 priority queue 2 and in some situations it's
5 100 percent for priority queue 3. Correct?

6 A. Yes, that's as we discussed.

7 I'm just making a semantic note here
8 that there could be other transmissions that --
9 in the ensemble of transmissions.

10 But yes, that is -- I agree with
11 that statement.

12 Q. Okay. Could I direct you to
13 Paragraph 116 of your declaration -- I mean,
14 I'm sorry -- Paragraph 116 of Eckert.

15 A. I have it.

16 Q. Do you see where Eckert refers to a
17 defined time interval --

18 A. I do.

19 Q. -- or E-DCH?

20 Is a defined time interval, would
21 that be considered a time slot?

22 A. I guess it could be considered a
23 time slot.

24 It depends -- the terminology "time
25 slot" is very specific to certain protocols and

1 standards. But it is an interval of time.

2 In some implementations, it would be
3 a time slot, for example, in a TDMA system.
4 But it could just be a time slot or it could
5 just be an interval of time without any label.

6 Q. And there is a term in UMTS called
7 "transmission time interval." Correct?

8 A. Yes, that is correct.

9 Q. So a defined time interval could be
10 one or more of those transmission time
11 intervals, or TTIs. Correct?

12 A. It could be, yeah.

13 Q. Could I refer you to Paragraphs --
14 to Eckert starting in Paragraph 244 and
15 continuing on through Paragraph 252, including
16 Figure 5.

17 A. Okay. 244 to 252.

18 Yes, I have that page.

19 Q. Do you see in Paragraph 244 where it
20 says: "The UTRAN uses an RRC message to signal
21 to the mobile terminal the weighting of the
22 individual queues"?

23 A. (Reviewing document.)

24 Yes, I see it.

25 Q. Is this an embodiment where the base

1 station explicitly signals queue waiting values
2 to a mobile station?

3 A. (Reviewing document.)

4 It doesn't say that this is an
5 embodiment, but it seems like it is an example
6 of an embodiment.

7 Sometimes the language in the
8 specification says "in an embodiment" or "in a
9 preferred embodiment," et cetera. I don't see
10 that language, but -- unless it appears
11 previously.

12 Q. Let me restate it.

13 In the example in Paragraph 244,
14 this is an example where the base station
15 explicitly signals queue weighting values to a
16 mobile terminal. Correct?

17 A. I would say so, yes.

18 Q. Could you also -- I want to refer
19 you to Figure 5 in that discussion as well.

20 And so Figure 5 illustrates a
21 message used to explicitly signal queue waiting
22 values. Correct?

23 A. Let me scroll to the figure.
24 (Reviewing document.)

25 It appears to be the template of a

1 message, yes.

2 Q. And that message is used to
3 explicitly signal queue waiting values.
4 Correct?

5 A. I believe that's what he's saying,
6 yes.

7 Q. Okay. Could I direct you to
8 Exhibit 1006, please.

9 (Exhibit 1006, previously marked for
10 identification.)

11 THE WITNESS: All right. I have it.

12 Q. Do you recognize Exhibit 1006?

13 A. Yes.

14 Q. And Exhibit 1006 is also called
15 Bucknell in this proceeding. Correct?

16 A. That's right.

17 Q. So when I refer to "Bucknell," you
18 understand that I'm referring to Exhibit 1006?

19 A. Yes.

20 Q. Could I direct you to Paragraph 2 of
21 Bucknell, please.

22 A. Okay. I have that.

23 Q. Do you see where Bucknell is
24 discussing MAC-e PDUs and MAC-d PDUs?

25 A. I do.

1 Q. Bucknell's discussion of MAC-d PDUs
2 and MAC-e PDUs relates to the uplink in UMTS.
3 Correct?

4 A. Yes, I see that it is the uplink
5 he's referring to here, yes.

6 Q. And in the uplink, a mobile device
7 would transmit a MAC-e PDU to a base station.
8 Correct?

9 A. Yes.

10 Q. I want to direct you to Figure 2 of
11 Bucknell as well as Paragraph 20, which is the
12 discussion of Figure 2.

13 A. All right. Let me have a moment to
14 scan this.

15 Q. Sure. Take your time.

16 A. Thank you. (Reviewing document.)
17 Okay. I've refreshed myself on this
18 content.

19 Q. Great.
20 Do you see about halfway down
21 Paragraph 20 where Bucknell refers to MAC-d
22 flows?

23 A. Yes.

24 Q. And Bucknell also refers to queue
25 stores, No. 50 in Figure 2. Correct?

1 A. Yes.

2 Q. And each of those queue stores 50 is
3 associated with a MAC-d flow. Correct?

4 A. Yes, that is correct.

5 Q. And when you view Figure 2, a POSITA
6 would have understood the output buffer as
7 containing a MAC-e PDU. Correct?

8 A. The output buffer is 80. Is that
9 correct?

10 Let me make sure we're talking about
11 the same item here.

12 Q. Yes, output buffer 80, Figure 2.

13 A. Yes. The answer's yes, yeah.

14 Q. Okay. So just to make it clear on
15 the record, a POSITA would have understood the
16 output buffer 80 as containing a MAC-e PDU.
17 Correct?

18 A. Correct.

19 Q. And so referring to that output
20 buffer in Figure 2, does Bucknell provide any
21 details on how the device transmitting the
22 contents of the buffer would indicate how many
23 MAC-d PDUs are included from each priority
24 queue?

25 A. I don't recall that he does.

1 Q. So the answer is no, that Bucknell
2 does not provide details of how a device would
3 indicate how many MAC-d PDUs are in that
4 buffer?

5 That's correct? So the answer's no
6 to that question?

7 A. I actually don't remember from my
8 memory of the documents.

9 I would actually need to scan the
10 document a little bit to see if he does discuss
11 that.

12 Sorry about that, but I don't
13 remember --

14 Q. That's okay.

15 Do you -- would you be able to do
16 that now or --

17 A. I can try. If I can locate the
18 discussion, that would be very helpful.

19 But I, again, don't remember off the
20 top of my head if he discusses that or how he
21 discusses that.

22 Q. Okay.

23 A. And let me see if I can get to that.
24 It's a relatively short document. (Reviewing
25 document.)

1 I have just scanned quickly these
2 surrounding paragraphs.

3 Could you repeat the pending
4 question, please, so I can answer it
5 specifically.

6 Q. Sure.

7 Referring to the output buffer in
8 Figure 2, does Bucknell -- and that's output
9 buffer 80 in Figure 2 -- does Bucknell provide
10 details on how the device transmitting the
11 contents of the buffer would indicate how many
12 MAC PDUs are included from each priority queue?

13 A. How many MAC-d PDUs are included?

14 Q. Correct.

15 A. I do not see an explicit mention of
16 that number, although -- let's see. The number
17 of PDUs which could -- I'm just reading it as
18 I'm answering. Bear with me for a second here.

19 I don't remember the exact number
20 being addressed. I'm reading it and I'm making
21 a lot of inferences or assumptions that a
22 POSITA would make reading this, one of which
23 would be that of course the number is kept
24 track of. But I'm looking for an explicit
25 disclosure here which I don't remember seeing.

1 (Reviewing document.)

2 There's some vague discussion in
3 Paragraph 25. And I say "vague" because it
4 still doesn't disclose how the precise number
5 would be ascertained or controlled, but there
6 is an implicit reference to that number.

7 So I don't think -- I think my
8 answer is that there is -- I don't think.

9 My answer is that I don't see an
10 explicit discussion or recall at the moment an
11 explicit discussion in Bucknell of how that
12 number is managed.

13 Q. Okay. Does Bucknell address the
14 problem of how to fill a MAC-e PDU from
15 multiple MAC-d priority queues?

16 A. He addresses the process of doing
17 that, yes.

18 Q. So it addresses the problem of how
19 you would select from multiple MAC-d priority
20 queues to create a MAC-e PDU. Correct?

21 A. I believe he does cover that, yes.

22 MR. WILKINS: Can we take a
23 five-minute break?

24 THE WITNESS: Of course.

25 MR. THEISS: No problem.

1 MR. WILKINS: Let's call it ten
2 minutes.

3 (Recess was taken from 10:45 a.m. to
4 10:56 a.m.)

5 MR. WILKINS: I don't have anything
6 further.

7 MR. THEISS: Okay. Most importantly
8 can you hear my dog screaming in the
9 background, because I do have a couple
10 questions for Dr. Lomp?

11 MR. WILKINS: No, I don't hear your
12 dog.

13

14 EXAMINATION BY

15 MR. THEISS:

16 Q. Great. My dog isn't screaming in
17 the background, so we don't need to take an
18 additional moment.

19 Dr. Lomp, opposing counsel asked you
20 several questions about the problem.

21 What is the problem that the
22 inventors were trying to solve with the
23 '138 patent?

24 A. The problem as I understand it, and
25 in particular the '138, is to control the

1 amount of -- a little background for a second,
2 I guess.

3 So in a system design, there are
4 always tradeoffs of performance versus
5 complexity, cost and overhead in the case of a
6 system like a wireless system. To make
7 something work like a transmission protocol
8 requires signalling, as we all know. And
9 signalling is not revenue generating from the
10 service provider's point of view. It's a
11 necessary overhead.

12 So one of the great efforts of the
13 last 40 years in wireless has been to reduce
14 overhead and get the maximum amount of use of
15 the bandwidth, precious commodity called
16 bandwidth, to send revenue generating data
17 between the users and the rest of the world,
18 network.

19 So in the case of these patents that
20 we're looking at in the '138 in particular, the
21 signalling is required because -- a lot of
22 signalling is required in general because we
23 have QOS management, which stands for quality
24 of service.

25 And the stated problem in the '138

1 is to build a integrated QOS and scheduling
2 protocol. It's in the beginning of the patent.
3 And it literally doesn't say explicitly, and we
4 want to do that in a way that minimizes the
5 amount of signalling, but throughout the patent
6 the amount of signalling required -- in fact,
7 throughout the '138, as well as Eckert and
8 Bucknell and Lohr, et cetera, all of them are
9 intensely focused on the cost of signalling,
10 And some words like "enormous amount of
11 signalling" are used in some of these patents.

12 So clearly as all persons of skill
13 in the art know, signalling is precious -- is a
14 cost of precious resources. So the problem is
15 to minimize that overhead. That's the
16 overarching problem.

17 What the '138 patent does that makes
18 it unique in my opinion is that it addresses
19 signalling in a systematic manner wherein QOS
20 can be managed, which requires signalling, and
21 where also scheduling can be managed.

22 And when you -- the other patents
23 also address the problem of signalling and come
24 up with what I consider to be some ad hoc
25 schemes to compactify or compress the

1 signalling, such as to use an index to send a
2 template as opposed to sending the details of
3 the template, because if everyone -- if both
4 sides know the set of templates that are
5 available, all I have to do is send an index,
6 not the template. Right? So that's obviously
7 more efficient.

8 So those are perfectly valid
9 approaches to the problem of signalling, what's
10 the format of transmission, which varies from
11 TTI to TTI in general, from transmission
12 interval to transmission interval.

13 The thing that the '138 patent does
14 is it allows the amount of signalling to be
15 controlled or -- not necessarily dynamically,
16 but traded off in the system design using a
17 parameter called the max number of queues
18 served, which is exactly what it sounds like.
19 It says, during each TTI we're not going to
20 address all of the queues that have data
21 weighting, we're going to limit it to some
22 number. And the lower you make that number,
23 the less signalling that you need, and the
24 higher, the more.

25 And what's unique about the '138 is

1 that while it's doing that tradeoff, or as you
2 sort of turn the dial on the amount of
3 signalling and the amount of overhead, the
4 relative delay of the queues -- I should back
5 up and point out that the delay through a
6 queueing system is the parameter of paramount
7 importance, latency of delay. The more delay,
8 the worse the system performs, and conversely.

9 So what's unique in a nutshell about
10 the '138 patent is that you can control the
11 signalling overhead and trade off the amount of
12 delay that is suffered by the signals -- the
13 data going through the queues, where if you
14 tolerate more delay, you can use less
15 signalling, and conversely.

16 And here's the punch line. In the
17 '138, the algorithm that's disclosed is unique
18 in that when you scale the delay, it -- for all
19 the settings of that parameter, the delay is
20 distributed in a manner that it is -- always
21 obeys or respects the priorities of the queues.

22 So a queue that's got twice the
23 priority weighting, twice the -- another queue,
24 will always have, relatively speaking, twice --
25 half the delay, half the delay, so inverse.

1 So the fact that you can turn that
2 knob, as I call it, and have the entire system
3 experience delay tapering accordingly and still
4 respect the QOS profile is -- to me is very
5 unique and elegant, in fact ingenious in my
6 opinion.

7 And the way the '138 does that,
8 which I don't think any other system that I
9 know of does, is it keeps track of the
10 respective queues with a state variable, a
11 vector of state variables, which are -- have
12 various names in the patent, the '138 patent.
13 But the running RAAU of delta, for example, is
14 a parameter, and that's probably the most
15 relevant to what I'm talking about right now.

16 And by doing that in the way it
17 does, it allows this vernier calibration of
18 delay versus overhead to be done without any
19 prejudice to any particular priority level.

20 So to me, that's -- the problem
21 being solved is providing signalling of course,
22 first of all, but doing so in a manner that can
23 be adjusted and tradeoffs be made where you can
24 adjust the system to have any level of
25 performance that you want, and that's the

1 unique part of it in my opinion.

2 Q. So there was a lot there.

3 But Dr. Lomp, you explained that all
4 the references in this proceeding deal with
5 signalling.

6 So why wouldn't a person of ordinary
7 skill in the art combine these teachings as
8 proposed by the Petitioner if they all deal
9 with signalling?

10 A. Well, some of them -- they all deal
11 with signalling in the sense that they all
12 recognize signalling.

13 They don't all solve the signalling
14 problem. So in some of the possible
15 combinations that have been considered, the
16 amount of signalling would increase if certain
17 combinations were made, and that would be
18 contrary to the stated objective of the
19 '138 patent.

20 MR. THEISS: I have no further
21 questions.

22 MR. WILKINS: I'm going to ask
23 further questions, because according to what I
24 see on the transcript, I think Dr. Lomp spoke
25 for about four or five minutes, and so I have a

1 few questions about some of the things he said.

2

3 EXAMINATION BY

4 MR. WILKINS:

5 Q. Dr. Lomp, you described calibration
6 of delay versus overhead.

7 Did the claims refer to "delay"? Do
8 the claims of the '138 patent refer to "delay"
9 at all?

10 A. I don't believe so.

11 Q. And you also referred to something
12 called a "vector of state variables"?

13 A. Yes.

14 Q. Is that term used in the claims at
15 all?

16 A. The claims don't use the terms
17 "state variables."

18 They do refer to some of the
19 variables by name, I believe, the RAAU queue,
20 for example.

21 Q. Excuse me?

22 A. I think that the claims may refer to
23 some of the variables, but they don't refer to
24 that term -- use that term, I should say.

25 Q. You said "the RAAU queue," R-A-U-U

1 queue [sic].

2 Is that in the claims?

3 A. Let me take a look here before I
4 answer that. (Reviewing document.)

5 Actually, I don't think the claim
6 uses the name. Let me just take a quick look
7 here. (Reviewing document.)

8 Yeah, the '138 patent does not refer
9 to the variables.

10 The answer is no, not the '138.

11 Q. And you also referred to a TTI, a
12 transmission time interval?

13 A. Yes.

14 Q. And that's a UMTS concept?

15 A. It's a 3GPP concept.

16 I would say it applies to much more
17 than UMTS. It applies to LTE and 5G as well.

18 It's a universal --

19 Q. Okay. But it also applies to UMTS?

20 A. I would think so, yes.

21 Q. And a transmission time interval is
22 a fixed interval of time?

23 (Simultaneous crosstalk.)

24 THE WITNESS: In UMTS it was, yes.

25 Q. And you also referred to the term

1 "bandwidth" in your prior discussion.

2 And when you use the term
3 "bandwidth," is it another way of saying that
4 data rate?

5 A. It's really another term for
6 resources.

7 But it's -- the data rate that is
8 supported by the assigned resources is
9 proportional to the bandwidth, yes.

10 Q. And so data rate would be a
11 resource. Correct?

12 A. Data rate is a -- is a result or a
13 characteristic of a resource.

14 You could. I mean, it's a semantic
15 question.

16 You have to have a certain amount of
17 bandwidth to support a certain data rate, so
18 there's a direct link between the two, yes.

19 Q. But you could have multiple streams
20 of data share a data rate. Correct?

21 A. I wouldn't characterize it that way.

22 I would say that you could have
23 multiple streams of data that each have a data
24 rate and that the sum of those data rates, if
25 they were being transmitted at the same time,

1 would have to be within the capacity of a
2 resource.

3 Q. Okay.

4 MR. WILKINS: I have no further
5 questions.

6 MR. THEISS: Nothing from our side.

7 (Deposition adjourned at 11:08 a.m.)
8
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25

1 District of Columbia, to wit:

2 I, Stacey L. Daywalt, a Notary
3 Public of the District of Columbia, do hereby
4 certify that the within-named witness remotely
5 appeared before me at the time and place herein
6 set out, and after having been duly sworn by
7 me, according to law, was examined by Counsel.

8 I further certify that the
9 examination was recorded stenographically by me
10 and this transcript is a true record of the
11 proceedings.

12 I further certify that I am not of
13 counsel to any of the parties, nor an employee
14 of counsel, nor related to any of the parties,
15 nor in any way interested in the outcome of
16 this action.

17 As witness my hand and Notarial Seal
18 this 6th day of February, 2026.

19
20
21 

22 Stacey L. Daywalt, Notary Public

23 My Commission Expires: 4/14/2026
24
25

INSTRUCTIONS TO WITNESS

Please read your deposition over carefully and make any necessary corrections. You should state the reason in the appropriate space on the errata sheet for any corrections that are made.

After doing so, please sign the errata sheet and date it.

You are signing same subject to the changes you have noted on the errata sheet, which will be attached to your deposition.

It is imperative that you return the original errata sheet to the deposing attorney within thirty (30) days of receipt of the deposition transcript by you. If you fail to do so, the deposition transcript may be deemed to be accurate and may be used in court.

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2		E R R A T A
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ACKNOWLEDGMENT OF DEPONENT

I, GARY R. LOMP, PH.D., do hereby certify that I have read the foregoing pages 1 to 46 and that the same is a correct transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the attached Errata Sheet.

DATE

SIGNATURE

Subscribed and sworn to before me
this _____ day of _____, 2026.

My commission expires:

Notary Public

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate.

The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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