

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2025-00343
U.S. Patent No. 10,292,138

**DECLARATION OF DR. ZHI DING, Ph.D.,
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITIONER REPLY**

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I. INTRODUCTION

1. I am making this declaration at the request of Tesla, Inc. in the matter of the *Inter Partes* Review (“IPR”) of U.S. Patent No. 10,292,138 (“the ’138 patent”) to Speight.

2. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this IPR. My compensation is not contingent on the outcome of this matter or the specifics of my testimony, and I have no other interest in this case or the parties thereto.

3. I have been asked to provide opinions addressing arguments presented in Patent Owner’s Response (Paper 14, the “Response”) in this IPR, which are also stated in Dr. Lomp’s Declaration (Ex.2007). I understand that this Declaration is being filed concurrently with Petitioner’s Reply to the Response.

4. In preparation of this Declaration, I have considered all materials listed in my Prior Declaration (Ex.1003). I have also considered the following additional materials:

Ex.1070	Deposition Transcript of Dr. Gary R. Lomp, Ph.D., February 3, 2026
Ex.1072	U.S. Patent No. 6,611,907
Ex.2007	Declaration of Dr. Gary Lomp in Support of Patent Owner’s Response

5. In forming the opinions expressed below, I have considered:

- the documents listed above as well as any materials cited in my analysis below;
- the relevant legal standards, including the standard for obviousness, as explained to me by counsel, and any additional authoritative documents as cited in the body of this declaration; and
- my own knowledge and experience based upon my work in the field of wireless communication systems as described below.

6. Unless otherwise noted, all emphasis in any quoted material has been added.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

7. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in Exhibit 1004. A brief summary of my relevant qualifications and professional experience is included in my Prior Declaration (Ex.1003) and is hereby incorporated by reference.

8. Based on my knowledge, experience, and education, I consider myself to be an expert at least in the field of wireless communications systems. As of the earliest priority date of the '138 patent, I was at least a person of ordinary skill in the art, and I had personal knowledge of the technologies utilized therein. See Ex.1003, ¶¶20-21.

III. LEVEL OF ORDINARY SKILL IN THE ART

9. I have performed the present analysis through the lens of a person of ordinary skill in the art (“POSITA”) in the field of the ’138 patent, as of its earliest possible priority date in May 2006, as defined in paragraphs 20-21 of my Prior Declaration (Ex.1003), which are hereby incorporated by reference.

IV. RELEVANT LEGAL STANDARDS

10. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the ’138 patent, I am relying on certain basic legal principles that counsel have explained to me. These principles are discussed below.

11. I understand that prior art to the ’138 patent includes patents and printed publications in the relevant art that predate the priority date of the alleged invention recited in the ’138 patent.

12. I have been informed that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and

the claimed subject matter.

13. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (e) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

V. ECKERT, OR ALTERNATIVELY ECKERT AND LOHR-1, RENDER OBVIOUS THE DISPUTED CLAIM LIMITATIONS.

14. Dr. Lomp alleges that Petitioner's prior art mapping is deficient because that Eckert, or Eckert combined with Lohr-1, does not disclose or render obvious "*a single allocation of uplink resources*," as recited in limitations [1.6] and [8.4] in claims 1 and 8, respectively. Ex.2007, ¶¶101-113. Dr. Lomp is wrong as

shown below.

15. My first declaration explains that this limitation is disclosed and rendered obvious by Eckert alone, and by Eckert combined with Lohr-1. My explanation for each basis is summarized below before addressing Dr. Lomp's arguments.

First, Eckert discloses or renders obvious limitation [1.6]. Eckert explains that mobile radio terminals (UEs) are allocated "resources" by the network and "the protocols of the protocol layers 1 and 2 are configured." Eckert, [0189]. Eckert relates to the issue of "how the data about **the new transport channel E-DCH** are to be transmitted via the UMTS air interface." Eckert, [0015].

Ex.1003, ¶87. Importantly, I explained that "[d]ata from buffer storages are transmitted in '**a defined time interval** via the E-dedicated channel (E-DCH).'

Ex.1005, [0116]." Ex.1003, ¶87 (emphasis added).¹ "The allocated E-DCH channel, which is a transport channel and also an uplink channel, Ex.1005, [0012], is an example of *a single allocation of uplink resources*." Ex.1003, ¶87.

16. Second, Eckert combined with Lohr-1 also renders obvious claim

¹ All emphasis shown herein is in the original document, unless otherwise specified.

element [1.6]. “Eckert focuses on a unit of time in UMTS called a ‘transmission time interval’ and also a MAC-e protocol data unit within the transmission time interval. Eckert, [0023].” Ex.1003, ¶90. Eckert teaches how data from various priority queues in a mobile terminal (also known as User Equipment (UE)) are selected for uplink transmission in the E-DCH within a transmission time interval. Ex.1005, [0023] (“[T]he data from various priority queues, are **transmitted in an MAC-e protocol data unit within a data transmission time interval.**”); Ex.1003, ¶90. Eckert explains that scheduling of the E-DCH for a UE is controlled by a base station. Ex.1005, [0012] (“The fundamental characteristics of this new transport channel [E-DCH] include ... **scheduling controlled by the base station**, also called NodeB in UMTS...”). Based on Eckert, it would have been obvious that network elements (such as base station) schedule time intervals for a UE to transmit and communicate those time intervals to the UE, e.g., indicate to the UE a transmission time interval to the UE for transmission. Ex.1003, ¶90. Further:

Like Eckert, Lohr-1 also relates to the E-DCH of UMTS, including different MAC-d data flows. Ex.1007, 5-6 (section entitled “E-DCH MAC Architecture at the user equipment”). **Lohr-1 confirms that a base station (called a Node B in UMTS) specifies time intervals for transmission.** Lohr-1, 7:6-9 (“With a grant message sent in the downlink from the Node B to the UE, the Node B

assigns the UE ... the time interval, the UE is allowed to send.”).

Thus, Eckert in view of Lohr-1 discloses a UE receiving “maximum data rate and the time interval” (*receive a single allocation of uplink resources*) for an E-DCH channel, thereby also rendering obvious limitation [1.6].

Ex.1003, ¶¶91-92 (emphasis added).

A. Eckert alone discloses or renders obvious “*a single allocation of uplink resources*.”

17. Dr. Lomp ignores the above mapping in my first declaration and instead attacks a different mapping of his own creation. Specifically, Dr. Lomp alleges that “the Petition’s mapping of Eckert’s E-DCH channel as a whole (e.g., including every possible time frame and spreading code) to the ‘a single allocation of uplink resources’ must be rejected.” Ex.2007, ¶105. My first declaration, however, did not map “an infinite number of time slots” to the recited “*a single allocation of uplink resources*,” as alleged. Ex.2007, ¶104. I specifically pointed out that in Eckert a “**defined time interval**” on the E-DCH is allocated to the UE for the purpose of transmitting uplink data, Ex.1003, ¶87, where “**scheduling**” of the E-DCH in a UE is “controlled by a base station,” Ex.1003, ¶90.

18. Further, Eckert’s disclosure matches Dr. Lomp’s understanding of “*a single allocation of uplink resources*” as “*a finite quantum of physical resources*”

that can be shared out, such as the resources defined by a combination of spreading codes and timeslots.” Ex. 2007, ¶101. Specifically, Eckert’s transmissions are measured units of time called “transmission time intervals” or TTIs. *See, e.g.*, Ex.1005 [0023], [0154]. A TTI is a fixed period of time, such as 2 ms in UMTS. *Id.*, [0020] (“In each transmission time interval (TTI) of 2 ms, it is possible to transmit a maximum of one MAC-hs PDU.”); *see also id.*, [0085]. Dr. Lomp agrees that a TTI is a “fixed interval of time” for transmission. Ex.1070, 40:11-24 (a “TTI” or “transmission time interval” is a “UMTS concept” and a “3GPP concept,” and in UMTS “a transmission time interval is a fixed interval of time.”).

19. Accordingly, Eckert’s “defined time interval” (Ex.1005, [0116]) is both a finite length of time and would have included a finite number TTIs (e.g., one TTI, two TTIs, etc.); Ex.1070, 24:6-12 (Referring Lomp to Eckert, [0116] and a “defined time interval” to have this exchange: “Q. And there is a term in UMTS called ‘transmission time interval,’ correct? A. Yes, that’s correct. Q. So a defined time interval could be one or more of those transmission time intervals or TTIs. Correct? A. It could be, yeah.”).

20. With respect to the “spreading codes” portion of IV’s understanding of “*single allocation*,” there are only a ***finite*** number of spreading codes employed on Eckert’s E-DCH channel. IV’s expert confirmed this during his deposition. Ex.1070, 11:1-10 (“Q. Would an E-DCH channel be expected to have associated

spreading codes? A. As part of the UMTS WCDMA specification it would, yes. **Q. Would an E-DCH be expected to have available a finite number of spreading codes? A. Yes, it would be expected.**”). Accordingly, even when considering Eckert’s E-DCH channel as a whole, the spreading code resources allocated to a UE are finite.

21. Accordingly, Eckert’s “defined time interval” of an “E-DCH channel” (which comprises a finite number of time slots (TTIs) and spreading codes) discloses and renders obvious “*a single allocation of uplink resources.*”

B. Eckert combined with Lohr-1 also renders obvious “*a single allocation of uplink resources.*”

22. My first declaration recites Lohr-1 simply to confirm that it was well known for Eckert’s base station to allocate to a mobile terminal specific time intervals on the E-DCH, thus confirming the obviousness of Eckert’s teachings. Petition, 35-36 (“Lohr-1 confirms that a base station (called a Node B in UMTS) specifies time intervals for transmission. Ex.1007, 7:6-9”). I did not attempt to (or need to) import Lohr-1’s scheduling modes into Eckert. Despite this, Dr. Lomp nevertheless asserts that Lohr cannot be bodily incorporated into Eckert and that ***Lohr’s*** methods do not satisfy claim 1: “the Petition has failed to demonstrate that either of the two scheduling modes in Lohr-1 (i.e., (i) a rate controlled mode, and (ii) a time and rate controlled mode) satisfy the requirement in claim 1 that that the

UE be provided with ‘a single allocation of uplink resources’ from the network.”

Ex.2007, ¶111. I have not asserted that Lohr-1’s scheduling modes independently meet claim 1.

23. For the sake of completeness only, I address Dr. Lomp’s arguments regarding Lohr-1’s two scheduling modes. Dr. Lomp first addresses the “rate controlled mode” in Lohr-1 (Ex.2007, ¶108), but since my first declaration does not cite any disclosure from Lohr-1 associated with this mode, Dr. Lomp’s arguments are irrelevant and should be given no weight.

24. Dr. Lomp next makes arguments regarding the “time and rate controlled scheduling mode” in Lohr-1. Ex.2007, ¶¶109-111. I agree with Dr. Lomp that in Lohr-1’s “time and rate controlled” mode, the base station controls the time during which a UE is allowed to transmit on the E-DCH channel. Ex.1007, 6:28-7:9 (Discussing “**Node B controlled time and rate scheduling**” as part of “E-DCH Signaling”). The scheduled time period is measured in TTIs. Ex.1007, 15:9-11 (A “dedicated transport channel is the E-DCH. The data is transmitted within the transport channels during periodic intervals, commonly referred to as transmission time interval (TTI).”). Because (i) Eckert’s base station also schedules the defined time interval during which the UE is to transmit, and (ii) Lohr-1’s base station-scheduled time interval on the E-DCH channel includes a finite number of spreading codes and time slots (TTIs), Eckert combined with

Lohr-1 plainly renders obvious “*a single allocation of uplink resources*”—even if Lohr-1’s “time and rate controlled” scheduling is bodily incorporated into Eckert.

25. Moreover, to the extent Lohr-1’s “time and rate controlled scheduling mode” is incorporated into Eckert (as posited by Dr. Lomp), such a combination would have achieved “more precise control of the interference” at the base station, as compared to the “rate-only controlled scheduling” mode. Ex.1007, 10:25-29. Dr. Lomp focuses only on Lohr-1’s explanation that when the base station also schedules transmission time (as opposed to rate-only scheduling), there is a “cost of more signaling overhead and scheduling delay.” Ex.2007, ¶112. This alleged drawback is not relevant to the combination and is only relative to scheduling without time. Specifically, if Lohr-1’s “time and rate controlled scheduling mode” were added to Eckert, no additional overhead due to time control would result because Eckert’s method already suggests time scheduling. The combination would not add any overhead not already present in Eckert’s system. And, even if it did, the existence of known design tradeoffs between the two scheduled modes does not obviate a motivation to combine that selects one mode (“time and rate controlled scheduling mode” in this case) based on its advantages (“more precise control of the interference” at the base station).

VI. ECKERT IS PROPERLY COMBINED WITH BUCKNELL.

26. To counter my combination of Eckert and Bucknell, Dr. Lomp argues

that: (1) the proposed modifications would negate Eckert's purpose; and (2) the stated motivations for a POSITA to modify Eckert with Bucknell are unconvincing. Ex.2007, ¶¶114-127. These arguments fail for multiple reasons. First, Dr. Lomp fails to address my dispositive explanation for why a POSITA would have combined Eckert and Bucknell. The analysis can stop there. Even ignoring that, the arguments Dr. Lomp presented are directed to embodiments in Eckert that are not part of the combination and thus irrelevant.

A. Dr. Lomp ignores my dispositive arguments regarding motivation to combine Eckert and Bucknell.

27. Dr. Lomp's arguments ignore my explanation that Bucknell provides additional implementation detail regarding one of the alternatives presented in Eckert that is based on the priorities of each queue. Ex.1003, ¶121. My first declaration explains that both Eckert and Bucknell address the problem of how to "select[] data from a plurality of MAC-d flows...to fill a single scheduled data unit in the form of a MAC-e PDU for transmission...over the E-DCH." Ex.1003, ¶104. IV's expert agrees. Ex.1070, 14:4-20 (Eckert) and 31:13-17 (Bucknell). I also explained that "[b]oth Eckert and Bucknell describe the use of MAC-d queues/flows having different assigned priorities, and forming a MAC-e PDU with MAC-d PDUs." Ex.1003, ¶105.

28. I also recognized that Eckert's "MAC-e protocol data unit" may be

created by “retriev[ing], i.e., read[ing], the data from the various priority queues” according to a number of alternatives, “such as the priorities of the data.” Ex.1005, [0228]; Ex.1003, ¶121. Thus, as explained in my first declaration, “Bucknell specifies implementation detail for how to select data for a MAC-e PDU according to ‘priorities of the data,’ which fits seamlessly in Eckert’s framework to address this issue.” Ex.1003, ¶121. In more detail:

Using Bucknell’s multiplexing scheme for the MAC-e subprotocol layer within the more complete set of protocol layers of Eckert’s system would have involved the combination of prior art elements (multiplexing MAC-d flows into a MAC-e PDU according to Bucknell’s teachings, in the UMTS protocol architecture of Eckert, which has a MAC-e protocol layer) according to known methods (**applying the rules of Bucknell in Eckert, which likewise already has priority queues**) to yield the predictable and beneficial result of **using the information already existing in Eckert’s user equipment to form protocol data units with data from multiple queues**, while avoiding starvation of lower priority queues. In addition, it would have been obvious to try **using Bucknell’s multiplexing and packet formation techniques in Eckert’s system because Eckert describes a system that has the information (e.g.,**

**priorities associated with queues) needed for applying
Bucknell's rules.**

Ex.1003, ¶124 (emphasis added). Thus, as shown in the Petition, Bucknell's methodology works seamlessly in Eckert's system using queue priorities that are already available in Eckert to address the problem of how to select data from MAC-d queues to fill a MAC-e PDU, using Eckert's specific suggestion that "the priorities of the data" be used for this purpose, Ex.1005, [0228].

29. Thus, the analysis of motivation to combine Eckert and Bucknell can end here, and there is no need to address Dr. Lomp's remaining arguments because the motivation to combine is supported by substantial evidence. However, Dr. Lomp's remaining arguments are addressed below for the sake of completeness.

B. Contrary to Dr. Lomp's arguments, replacing Eckert's queue weighting in certain embodiments with Bucknell's priority queue selection would not render Eckert inoperable.

30. Dr. Lomp makes a tortured argument that because Eckert allegedly tied its set of transport format combinations to MAC-d queue weighting values, replacing Eckert's queue weightings with Bucknell's method of selecting data from queues would remove the feature that allows Eckert to reduce signaling overhead. Ex.2007, ¶¶115-122. Dr. Lomp's arguments fail for reasons presented below.

i. Modifying Eckert using Bucknell is beneficial, and IV's arguments otherwise focus on embodiments of Eckert that are

not part of Petitioner's combination.

31. As set forth in my first declaration, the combination of Eckert and Bucknell is built on specific embodiments of Eckert in which MAC-d queue weighting values are explicitly signaled from a base station to a mobile terminal. Ex.1003, ¶122 (citing Ex.1005, [0244], which recites that “the UTRAN uses an RRC message 500, as shown by way of example in FIG. 5, to signal to the mobile radio terminal 118 the weighting of the individual priority queues 306”); *see also* Ex.1005, [0244]-[0252], Figure 5. Dr. Lomp does not dispute the existence of these embodiments, and, in fact, Dr. Lomp concedes the point. Ex.2007, ¶¶87 (“[I]n some embodiments, Eckert sends the weights from the mobile radio network to the mobile terminal...”); Ex.1070, 25:13-26:6 and 15:25-16:4. Dr. Lomp likewise acknowledged that Eckert paragraph [0244] discloses “an example where the base station explicitly signals queue weighting values to a mobile terminal.” Ex.1070, 25:12-17.

32. Because these embodiments require the base station to transmit priority weighting values to the mobile terminal, the motivation to modify them is straightforward: replacing Eckert's weight-based data selection method with Bucknell's priority-based multiplexing scheme eliminates that signaling requirement, thereby reducing control signaling overhead. *See* Ex.1003, ¶¶123-124. As explained in my first declaration, Bucknell's alternative methods “do not

require sending weighting values from a base station to a UE, as is done in Eckert,” and further “reduce complexity compared to Eckert's use of queue weights by avoiding the use of calculations that involve selecting data from queues in proportion to weighting values.” *Id.* These are concrete benefits that provide a clear reason to make the proposed modification.

33. Dr. Lomp’s arguments against this motivation fail because they are directed at the wrong embodiments. Dr. Lomp focuses on other Eckert embodiments in which the weightings “are not explicitly signalled,” but are instead assigned a priori based on traffic classes. Ex.2007, ¶87. Dr. Lomp further argues that Eckert's weighting scheme is linked (or tied) to predefined transport format combinations, such that removing the weights would destroy Eckert's mechanism for reducing signaling in the MAC-e PDU control header. Ex.2007, ¶¶115-118. But none of these arguments are directed to the embodiments that I actually rely upon. My first declaration only addresses the embodiments in which queue weights are explicitly signaled from the base station – and in those embodiments, the signaling overhead associated with transmitting the weights is a tangible cost that Bucknell's approach eliminates. Dr. Lomp’s contention that the modification would “render[] Eckert inoperable,” Ex.2007, ¶115, is thus a straw man, built entirely on embodiments outside the scope of the proposed combination.

34. Accordingly, my motivation to modify the explicitly signaled

embodiments of Eckert using Bucknell's teachings is a sound basis for the obviousness of the challenged claims.

ii. Modifying Eckert using Bucknell is practical.

35. Dr. Lomp's argument that applying Eckert's transport formats to Bucknell's teachings would be "impractical" (Ex.2007, ¶¶118-122) rests on a fundamental mischaracterization of the relationship between these two references. Properly understood, Bucknell presents solutions to a first of two problems identified in Eckert, and Eckert has additional teachings related to a second problem that apply directly – and without conflict – to the solutions presented in Bucknell.

a) *Eckert addresses two distinct problems.*

36. Eckert addresses two distinct problems in the context of transmitting data from multiple MAC-d flows in the E-DCH framework. First, Eckert addresses how to create a MAC-e PDU from a plurality of MAC-d flows in a mobile terminal – e.g., how many MAC-d PDUs should be selected from each MAC-d queue/flow. Ex.1003, ¶¶104-105; Ex.1070, 14:11-24; Ex.1005, [0015]. Eckert's weighting values serve this function by specifying the proportion of the total available data transmission bandwidth allocated to each priority queue. Ex.1005, [0061], [0066], [0280]; Ex.2007, ¶¶83-86; Ex.1003, ¶122. Second, Eckert addresses the distinct problem of how to signal the contents of a MAC-e PDU (e.g., how many MAC-d

PDU) and from which MAC-d queues) from a mobile terminal to a base station. Ex.1005, [0027], [0235]-[0236]. Eckert solves this signaling problem through predefined transport formats and associated indexes: rather than adding individual control data headers to each MAC-e SDU (which would produce “an enormous volume of additional signalling data”), Eckert transmits only a single index to a row in a table of predefined transport format combinations stored at both the terminal and the network. Ex.1005, [0024]-[0027], [0235]-[0236]; Ex.2007, ¶121. This single index conveys the complete makeup of the MAC-e PDU to the receiver with minimal overhead. Ex.1005, [0236] (“[J]ust one index for the respective table row needs to be written to the control range of the MAC-e protocol data unit 607, which additionally achieves significant savings in terms of bits required in the control data range 608, i.e. in the header field of the MAC-e protocol data unit 607.”).

b) Bucknell addresses only the first problem.

37. Bucknell addresses only the first of the two problems addressed by Eckert – how to fill a MAC-e PDU from multiple MAC-d flows in a mobile terminal. Ex.1003, ¶¶48, 104-107; Ex.1070, 31:13-17 (“Q. Okay. Does Bucknell address the problem of how to fill a MAC-e PDU from multiple MAC-d priority queues? A. He addresses the process of doing that, yes.”); Ex.1006, [0003], [0020], [0025]-[0028]. Bucknell’s apparatus for filling a MAC-e PDU is illustrated below,

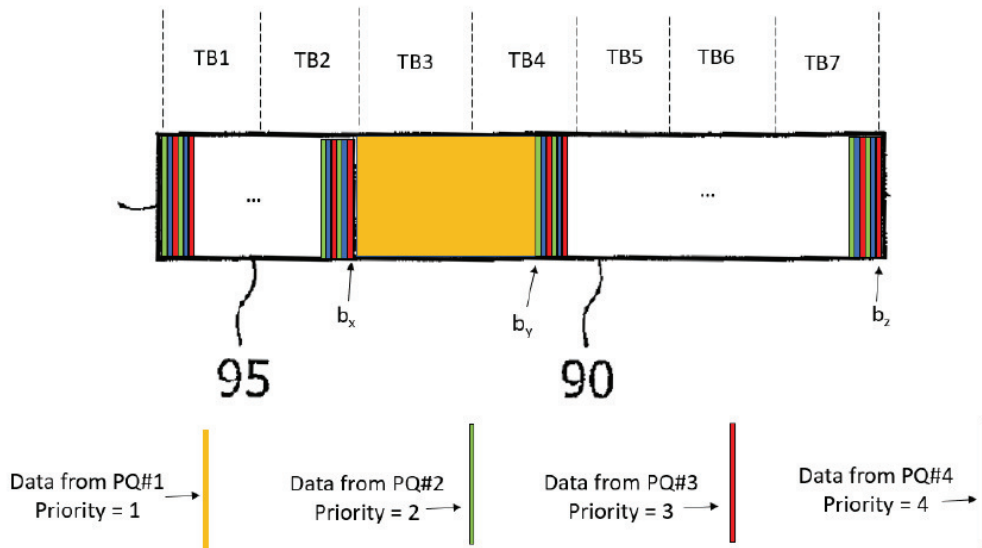
c) The combination of Eckert and Bucknell is complementary, not conflicting.

39. Because Eckert and Bucknell address different aspects of the MAC-e PDU transmission process, Eckert's transport format signaling mechanism applies directly and without modification to Bucknell's data selection methodology. A POSITA would have recognized that regardless of *how* data is selected from the MAC-d queues to populate a MAC-e PDU—whether by Eckert's proportional weighting or by Bucknell's priority-based iterative selection—the *result* is the same: a MAC-e PDU containing a deterministic number of MAC-d PDUs from identified MAC-d queues. Once the MAC-e PDU is assembled according to Bucknell's data selection rules, Eckert's solution of using a single index to a row in a table of transport format combinations applies so as to signal the resulting PDU contents to the base station. The transport format table merely describes the outcome of the data selection process—how many MAC-d PDUs from each queue are included—not the process by which the data was selected. Thus, contrary to Dr. Lomp's assertion, I do not propose eliminating Eckert's transport format signaling; rather, I propose only the data selection methodology (Bucknell's priority-based selection from MAC-d flows for Eckert's MAC-e PDU, Ex.1003, ¶¶121-125) while doing nothing to change Eckert's efficient transport format signaling mechanism.

d) IV's "impracticality" argument relies on a strawman.

40. In further attempts to demonstrate the combination is “impractical,” Dr. Lomp constructs a strawman argument purporting to show an example makeup of the portions 90 and 95 of Bucknell’s output buffer 80, Ex.2007, ¶¶118-119, where the output buffer 80 represents a MAC-e PDU, *see* Ex.1003, ¶114 and Ex.1070, 28:14-18. The portions 90 and 95 are populated with PDUs from queue stores 50 associated with MAC-d flows. Ex.1006, [0002]-[0003], [0020], [0026]-[0028]; Ex.1070, 27:20-28:4; Ex.1003, ¶¶114-115. Dr. Lomp’s example depicts MAC-d PDUs from different queues (PQ#1 through PQ#4) interleaved in fragmented fashion across transport blocks, and then assumes that an “enormous” volume of signaling information would be required because the data from each queue is scattered across multiple transport blocks in an irregular pattern. Ex.2007, ¶119.

IV's expert



Ex.2007, ¶119

41. Dr. Lomp's example fails because it assumes a POSITA would follow his suggested manner to populate the MAC-e PDU in the most unfavorable arrangement possible and then stubbornly refuse to account for transport format constraints. To the extent that a POSITA would have even populated Bucknell's buffer 80 (MAC-e PDU) in the manner illustrated by Dr. Lomp, it is well within the skill of a POSITA to simply rearrange the MAC-d PDUs in the buffer 80 such that data from each MAC-d queue are grouped together and arranged consecutively in a MAC-e PDU. Specifically, rather than scattering data from PQ#1, PQ#2, PQ#3, and PQ#4 across transport blocks in an interleaved fashion as Dr. Lomp depicts, a POSITA would group all MAC-d PDUs from each respective queue

(e.g., all yellow-designated PDUs from PQ#1, all green-designated PDUs from PQ#2, all red-designated PDUs from PQ#3, and all blue-designated PDUs from PQ#4) into contiguous blocks aligned with transport block boundaries, such that Eckert's transport formats are directly applicable.

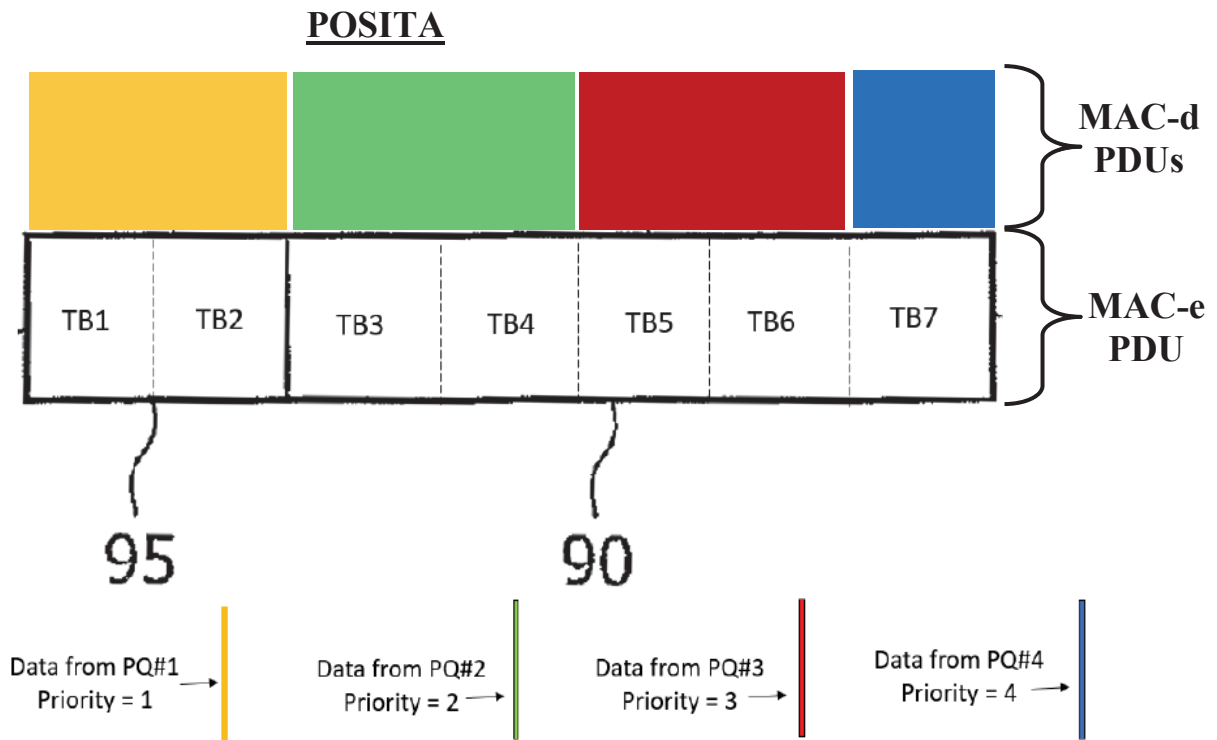
42. Moreover, a POSITA would have understood and applied standard memory management techniques to the problem known in the art as “file fragmentation” and the associated solutions—that allow fragmented/segmented data (or data segments) to be rearranged and reassembled. For example, it was well known that if a digital file is divided into a plurality of file sections and stored non-consecutively in memory, this leads to different drawbacks depending on the type of memory. Ex.1072, 22:30-23:20. As was understood, rather than store fragments in non-consecutive memory locations, it was straightforward to simply rearrange the segments into consecutive memory locations:

In order to resolve the problems created by such fragmentation, the file system operation unit 9 reads the non-consecutively stored file sections, and stores them again consecutively in the memory (defragmentation). If the above processing is performed, the file sections forming a file can be read smoothly without requiring any disc seeks to be performed, enabling data to be read at high speed.

Ex.1072, 22:39-46; *see also id.*, 23:13-15 (another example describing different segments of a file stored consecutively in memory).

43. Moreover, segmentation and reassembly techniques were a fundamental part of the UMTS protocol architecture – Eckert itself describes data being “split or assemble[d]” by the RLC protocol layer, Ex.1005, [0160]. A POSITA would have understood that the order in which MAC-d PDUs are selected from queues (per Bucknell) need not dictate the order in which they are arranged within the MAC-e PDU, and that applying well-known memory management techniques to align the data with transport block boundaries was a straightforward exercise in ordinary engineering skill.

44. An example reassembly of MAC-d PDUs within the MAC-e PDU that fit neatly within transport blocks (TBs) is shown below, as would have been performed by a POSITA.



Ex.2007, ¶¶118-119 (modified)

45. Once the MAC-d PDUs are grouped by queue and arranged to correspond with transport block boundaries, it is straightforward to use a single index to a table of transport format combinations to indicate the number of MAC-d PDUs from each of the MAC-d queues in the MAC-e PDU—precisely as Eckert teaches.

e) Summary.

46. In sum, Dr. Lomp’s “impracticality” argument fails under scrutiny. Eckert's transport format signaling and Bucknell's data selection methodology address complementary aspects of the MAC-e PDU process, and a POSITA of

ordinary skill and creativity would have recognized that these teachings combine naturally, with transport formats serving to signal the outcome of Bucknell's data selection just as they signal the outcome of Eckert's weighting-based selection.

C. Dr. Lomp's remaining arguments also disregard Eckert's embodiments that are addressed by Petitioner.

47. Dr. Lomp's remaining arguments rely on embodiments in Eckert in which weighting values are not explicitly signaled, Ex.2007, ¶¶124-125, again disregarding the embodiments I addressed in my first declaration where the weighting values are explicitly signaled. Dr. Lomp's argument fails for reasons presented previously – there is no dispute that there are embodiments in Eckert in which weighting values are explicitly signaled.

48. Dr. Lomp also alleges that it would not be worth saving a “fraction of a clock cycle of processing required to multiply an available bandwidth quantity by an allocation percentage.” Ex.2007, ¶126. Dr. Lomp thus admits that using Bucknell's method of data selection from queues is simpler than Eckert's method in a sense because Bucknell avoids multiplication operations, consistent with the analysis in the Petition. *See* Ex.1003, ¶123 (“Bucknell's methods reduce complexity compared to Eckert's use of queue weights by avoiding the use of calculations that involve selecting data from queues in proportion to weighting values.”). Again, both Bucknell and Eckert address the problem of how to fill a

MAC-e PDU from various MAC-d queues, Ex.1003, ¶104; Dr. Lomp agrees, *see* Ex.1070, 14:4-20 (Eckert) and 31:13-17 (Bucknell); and I have demonstrated that Bucknell teaches a suitable option for addressing this same problem as in Eckert, thereby demonstrating obviousness.

VII. CONCLUSION

49. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

Date: Feb. 16, 2026

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Date: 2026.02.16
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