

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners,

v.

APEX BEAM TECHNOLOGIES, LLC,

Patent Owner.

Patent No. 10,912,081
Filing Date: May 6, 2018
Issue Date: February 2, 2021

Inventor: Leeobo Zhang
Title: METHOD AND DEVICE USED FOR WIRELESS COMMUNICATION
IN UE AND BASE STATION

PATENT OWNER'S PRELIMINARY RESPONSE

Case No. IPR2023-00599

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2001	Defendants' Patent L.R. 3-3 Invalidity Contentions and Subject Matter Ineligibility Contentions, <i>Apex Beam Technologies LLC v. Samsung Electronics Co., Ltd. et al.</i> , Case No. 2:22-cv-00188-JRG, served March 2, 2023
2002	Order Denying Motion to Stay Pending <i>Inter Partes</i> Review, Dkt. 55, <i>Apex Beam Technologies LLC v. Samsung Electronics Co., Ltd., et al.</i> , Case No. 2:22-cv-00188-JRG (E.D. Tex. June 14, 2023)
2003	Redline Comparison of the Declaration of Apostolos Kakaes, Ph.D. (Ex. 1003) to the Petition

I. INTRODUCTION

On February 28, 2023, Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) submitted a petition (Paper 1, “Petition” or “Pet.”) to institute *inter partes* review (“IPR”) of U.S. Patent No. 10,912,081 (Ex. 1001, “the ’081 Patent”), challenging claims 1-12 (the “Challenged Claims”). The Petition asserts that the Challenged Claims are anticipated by International Patent Publication No. WO 2017/083489 to Lee et al. (“Lee”) and rendered obvious by International Patent Publication No. WO 2018/201861 to Chen et al. (“Chen”) in view of Lee. Pet. at 3. However, the Board should deny the Petition for at least two reasons: (1) the Petitioner fails to identify how several elements of the Challenged Claims are anticipated by Lee or rendered obvious by Chen in combination with Lee; and (2) the Board should exercise its discretion to deny the Petition under 35 U.S.C. § 314(a).

Moreover, the Board should not credit the expert testimony of Dr. Kakaes because his expert Declaration merely repeats the language of the Petition. *See generally* Ex. 2003.

II. THE ’081 PATENT

The ’081 Patent discloses and claims “transmission schemes of radio signals in wireless communication systems and, in particular, to a method and a device for multi-antenna transmission. Ex. 1001, at 1:16-20.

The '081 Patent describes why such schemes are necessary in view of the problems of the prior art:

The inventor finds through research that cross-slot beam indication would result in reduction of dynamic of beam information, increase of overhead of control signaling, reduction of dynamic of scheduling, and other problems. A UE with high processing capacity can decode the PDCCH in a short time to obtain beam information that is used for receiving the PDSCH that is in the time slot of the PDCCH, and adjust a receiving beam to receive a multicarrier symbol in which the PDSCH is located. However, the delay in PDSCH transmission caused by decoding PDCCH would result in underutilization of system resources.

In view of the above problems, the present disclosure provides a solution.

Id. at 1:49-62. Therefore, at least one of the benefits of determining multi-antenna related receiving depending on the “relative position of a time-domain resource occupied by the given multicarrier symbol with respect to a first time point in time domain” in the '081 patent is to “avoid[] the problem of delay” between the second and first signal due to decoding:

In one embodiment, the above method is advantageous in that the delay in the receiving of the first radio signal resulted from the delay in the decoding of the second radio signal is avoided.

In one embodiment, the above method is advantageous in that, before the first time point, the PDSCH receives the multicarrier symbol of the PDSCH before the first time point using the same beam used for receiving the PDCCH,

thereby avoiding the problem of the delay in PDSCH transmission resulted from the delay in PDCCH decoding.

Ex. 1001, 4:24-37.

Fig. 7 of the '081 Patent is representative of how the invention seeks to provide the aforementioned benefit. Fig. 7 and its accompanying description in the '081 Patent specification shows (i) that the first radio signal can comprise different multi-carrier symbols and (ii) that the multi-carrier symbols can change at a “first time point” between a first receiving beam, which is the same beam that the second radio signal is sent under, and second receiving beam.

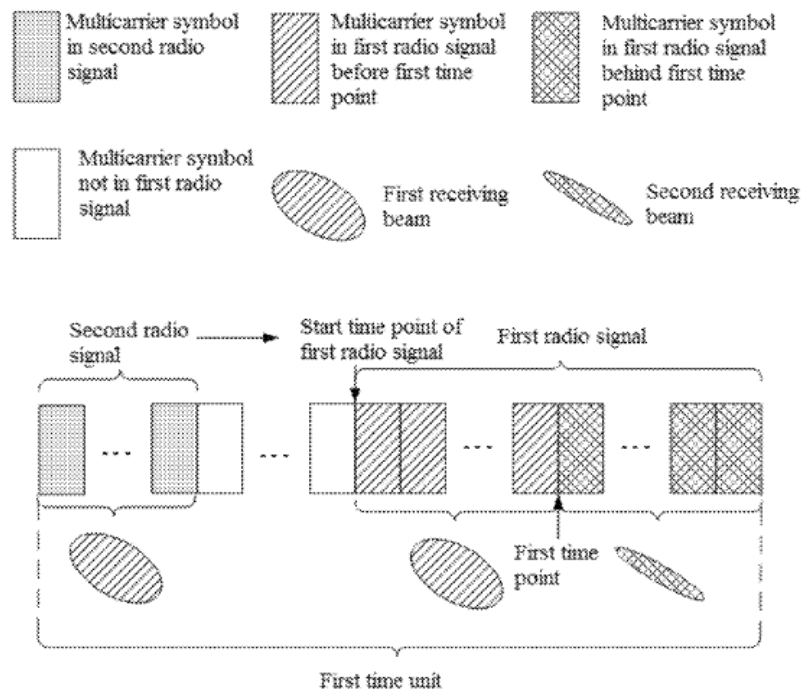


FIG. 7

Ex. 1001, Fig. 7.

[B]oth the first radio signal and the second radio signal are transmitted within the first time unit, the multicarrier symbols occupied by the second radio signal are before the multicarrier symbols occupied by the first radio signal in time domain, the first receiving beam is used for receiving the second radio signal, the second radio signal indicates the start time point of the first radio signal in the first time unit, and the start time point is used for determining the time domain resource occupied by the first radio signal in the first time unit. . .

[T]he first receiving beam is used for receiving the second radio signal and the multicarrier symbols of the first radio signal before the first time point, and the second receiving beam is used for receiving the multi-carrier symbols of the first radio signal behind the first time point.”

Ex. 1001, 18:1-18.

III. THE ALLEGED PRIOR ART

A. Lee

Lee is directed towards “[a] wireless transmit/receive unit (WTRU) configured to perform wireless communications in higher frequency bands (*e.g.*, above 6 GHz) using a fallback scheme.” Ex. 1004 at Abstract.

The Abstract of Lee, and elsewhere in Lee, explicitly describe such a “fallback scheme” is accomplished using at least one control signal and two subsequent data signals, that correspond to the control signals.

The WTRU includes a receiver configured to receive, in a time transmission interval (TTI), *at least one control signal* and a *first data signal using a first beam associated with a first beam identifier (ID)* and a *second data signal*,

subsequent to the first data signal, using a second beam associated with a second beam ID different from the first beam ID, such that one of the at least one control signal indicates the second beam ID; and a processor configured to switch a receive beam of the receiver from the first beam to the second beam based on the second beam ID to receive the second data signal.

Ex. 1004, Abstract.

According to another embodiment, a method implemented by a WTRU includes *receiving, in a time transmission interval (TTI), at least one control signal, a first transport block and a second transport block*. The at least one control signal and the first transport block are received using a first beam, and the second transport block is received using a second beam that has a beam width that is more narrow than a beam width of the first beam. In addition, the first transport block and the second transport block are multiplexed using time division multiplexing such that the second transport block is received subsequent to the first transport block. The method further includes switching a receive beam of the WTRU from the first beam to the second beam, to receive the second transport block, based on beam information associated with the second beam received in one of the at least one control signal.

Id. at [0259].

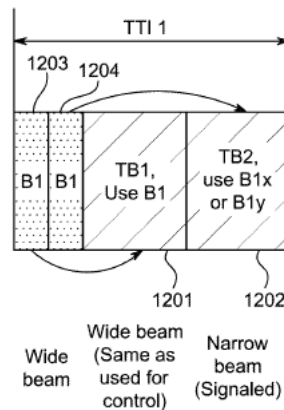


FIG. 12

Id. at Fig. 12.

With respect to B1 1203 and B2 1204 in Fig. 12 displayed above, Lee describes that each different control beam (e.g., control Tx beam 1203 and control Tx beam 1204) would indicate scheduling information for their respective transport blocks (e.g., transport block 1201 and transport block 1202):

In an example which the two transport blocks may be transmitted in a TDM fashion, the control channel and the DL data assignment may be in the same TTI. For example, *transport block 1201 may be associated with control Tx beam 1203 and transport block 1202 may be associated with control Tx beam 1204*. The *first transport block may be mapped on to a first codeword provided in the control Tx beam 1203 and the second transport block may be mapped on to a second codeword provided in control Tx beam 1204*. The codeword may be associated with: a specific beam or beam ID, a BRS, and/or a time/frequency location. As used herein, a codeword represents user data before it is formatted for transmission.

Id. at [0169].

With respect to TB1 and TB2, Lee's MAC PDU generates these two different signals (*i.e.*, TB1 and TB2) from two different code blocks and two different code words (CW) emphasized below.

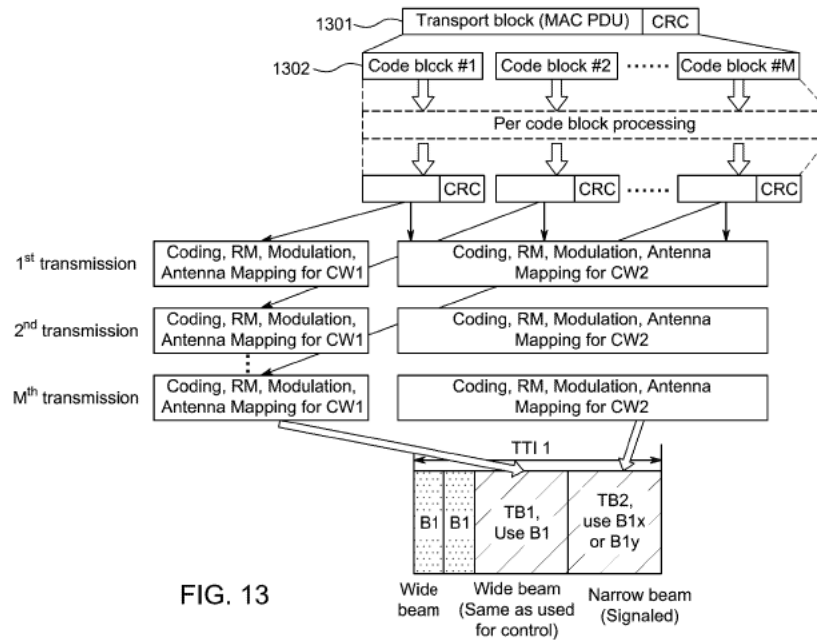


FIG. 13

Id. at Fig. 13. The specification of Lee confirms that there are a number of sub-blocks (or code blocks) that the MAC PDU is partitioned in to reach the two different TB signals:

In one example, for the data fallback transmission, the DCI may include the following: a field indicating that **a single MAC PDU is transmitted using the 2 CW scheme, a field indicating the number M of sub-blocks (or code blocks) the MAC PDU is partitioned in for mapping to codeword #1** (see *e.g.*, FIG. 13 and FIG. 14), and the index (in the range 1 to M) of the sub-block (or code block) transmitted in the current TTI. The maximum value of M may be predefined. The choice for the maximum value of M may be a trade-off between the maximum transport block size

to be transmitted with the fallback scheme, and the maximum number of TTIs *the MAC PDU may be transmitted due to sub-block or code-block partitioning for transmission on codeword #1*.

Id. at [0228].

B. Chen

Chen “relate[s] to the field of communications technology and in particular relates to a message-decoding method, a transmitting end device, and a receiving end device.” Ex. 1012, at 1. Chen seeks to solve the technical problem of “how a receiving end device selects an appropriate receiver parameter to decode a message transmitted by a transmitting end device. *Id.*”

Chen’s Fig. 4 is representative of its disclosed embodiments and illustrates a first message split into two “parts” (e.g., “first part content of first message” and “second part content of first message”). Both the first and second part content of the first message are transmitted twice, first after a second message with beam indication information present, and second after a second message with beam indication information not present.

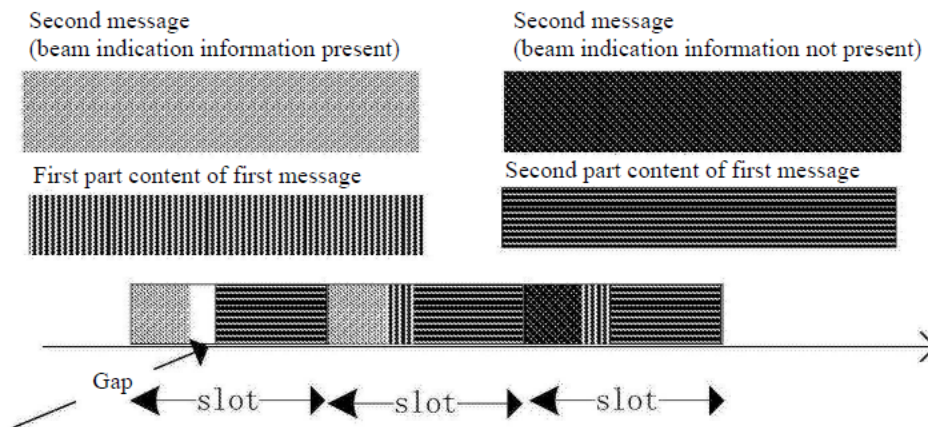


FIG. 4

Ex. 1012, Fig. 4. Chen describes Fig. 4 in the context of determining whether to decode the second part content or discard the first part content of the first message in order to “improve the accuracy of receiving end device decoding”:

In this implementation, because said second message includes parameter indication information, said receiving end device uses said *target receiver parameter indicated by said parameter indication information to decode said second part content*, wherein said transmitting end device has not yet transmitted said first part content. For example, the first slot shown in FIG. 4. It is possible in this way to *improve the accuracy of receiving end device decoding*.

In addition, when the second message includes parameter indication information, *it is possible to discard said first part content and use said target receiver parameter indicated by said parameter indication information to decode said second part content*. That is, it is possible to discard the first part content of the second slot shown in FIG. 4, while also being able to *ensure performance between the transmitting end device and the receiving end device because the transmitting end device in this situation may transmit non-important information in the*

first part content and important information in the second part content. Of course, the embodiments of the present disclosure are not limited to the above; when the first message includes parameter indication information, the transmitting end device may also transmit important information in the first part content and transmit non-important information in the second part content.

In addition, when the second message includes parameter indication information, *the default receiver parameter may be used to decode said first part content, and said target receiver parameter indicated by said parameter indication information may be used to decode said second part content.* Thus, it is possible for the receiving end to precisely decode first part and second part content.

In addition, when the second message does not include parameter indication information, the default receiver parameter may be used to decode said first part content and said second part content. That is, the third slot shown in FIG. 4.

Ex. 1012, 17-18.

IV. CLAIM CONSTRUCTION

For the purposes of this Preliminary Response only, Patent Owner believes that claim construction is not required to resolve any issues. Pet. at 10-11.

V. LEVEL OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Patent Owner utilizes Petitioner's proposed level of skill in the art: "at least a master's degree in electrical engineering or a similar field and at least two years of experience working with telecommunications systems, including multiple-input multiple-output (MIMO)

technology. Additional relevant work experience can compensate for less education, and *vice versa*.” Pet. at 13 (citations omitted).

**VI. PETITIONER HAS NOT DEMONSTRATED A REASONABLE
LIKELIHOOD OF SUCCESS FOR THE GROUNDS
ADVANCED IN THE PETITION, AND THE PETITION
SHOULD BE DENIED**

Anticipation under 35 U.S.C. § 102 is a high bar to meet. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) so-called secondary considerations where in evidence. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983).

The Board has held that a failure to identify the differences between the claimed subject matter and the prior art is fatal to an obviousness challenge. *See, Apple, Inc. v. Contentguard Holdings, Inc.*, IPR2015-00355, Decision Denying Institution of *Inter Partes* Review, Paper 9 at 9-10 (P.T.A.B. June 26, 2015) (denying institution for failure to identify the differences between the claimed subject matter and the prior art).

In arriving at an obviousness determination, the Board must sufficiently explain and support the conclusions that the prior-art references disclose all the elements recited in the Challenged Claims and a relevant, skilled artisan not only could have made, but would have been motivated to combine all the prior art references in the way the patent claims and reasonably expected success. *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). That is, even if all the claim elements are found across a number of references, an obviousness determination must consider whether a person of ordinary skill in the art would have the motivation to combine those references. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1368 (Fed. Cir. 2016); *Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1067 (Fed. Cir. 2017) (vacating and remanding an obviousness determination, in part, because the Board did not make factual finding as to whether there was an apparent reason to combine all three prior art references to achieve the claimed invention and whether

a person of skill in the art would have had a reasonable expectation of success from such a combination). This combinability determination, as supported by an articulated motivation to combine, requires a plausible rationale as to why those prior art references would have worked together. *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013). Absent some articulated rationale, a “common sense” finding is no different than the conclusory statement “would have been obvious.” *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017). Of additional importance, “knowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references. . . .” *Innogenetics, N.V. v. Abbott Lab’ys.*, 512 F.3d 1363, 1373 (Fed. Cir. 2008).

A. Claims 1-12 are Not Anticipated by Lee

1. Independent Claim 1

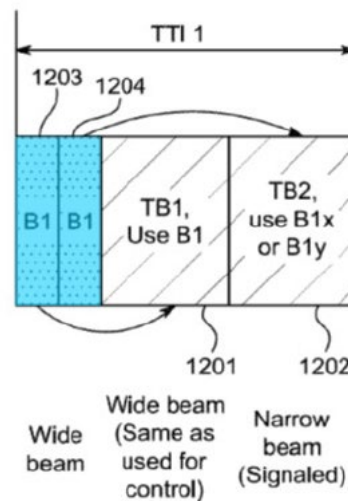
a. Lee Does Not Disclose “receiving a second radio signal,” as Required by Claim 1

Claim 1 of the ’081 Patent recites “receiving a second radio signal.” Lee neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 15-16¹. The Petition fails to disclose this element because Petitioner does not identify a single radio signal as the one incoming “second radio signal.”

¹ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 82-83) for its assertion that this disclosure in Lee meets the limitation, but the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 82-83.

Rather, as explained below, Petitioner misrepresents the Lee disclosure to rely on multiple radio signals to meet the claim requirements of the “second radio signal.”

Petitioner argues that two different control signals (B1 1203 and B1 1204) are collectively the claimed second radio signal.



Lee, FIG. 12 (annotated).

Pet. at 16.

Petitioner’s argument fails to disclose “receiving a second radio signal” because B1 1203 and B1 1204 are two separate control signals and cannot collectively be the claimed “second radio signal.” The Abstract of Lee, and elsewhere in Lee, explicitly describes “at least one control signal,” and two subsequent data signals, that correspond to the control signals.

The WTRU includes a receiver configured to receive, in a time transmission interval (TTI), *at least one control signal* and a *first data signal using a first beam associated*

with a first beam identifier (ID) and a second data signal, subsequent to the first data signal, using a second beam associated with a second beam ID different from the first beam ID, such that one of the at least one control signal indicates the second beam ID; and a processor configured to switch a receive beam of the receiver from the first beam to the second beam based on the second beam ID to receive the second data signal.

Ex. 1004, Abstract.

According to another embodiment, a method implemented by a WTRU includes *receiving, in a time transmission interval (TTI), at least one control signal, a first transport block and a second transport block*. The at least one control signal and the first transport block are received using a first beam, and the second transport block is received using a second beam that has a beam width that is more narrow than a beam width of the first beam. In addition, the first transport block and the second transport block are multiplexed using time division multiplexing such that the second transport block is received subsequent to the first transport block. The method further includes switching a receive beam of the WTRU from the first beam to the second beam, to receive the second transport block, based on beam information associated with the second beam received in one of the at least one control signal.

Id. at [0259].

The part of the specification of Lee that discusses Fig. 12 also confirms that B1 1203 and B1 1204 are separate signals. Referring to B1 1203 and B1 1204, Lee describes that:

In an example which the *two transport blocks* may be transmitted in a TDM fashion, the control channel and the

DL data assignment may be in the same TTI. For example, *transport block 1201 may be associated with control Tx beam 1203 and transport block 1202 may be associated with control Tx beam 1204*. The first transport block may be mapped on to a first codeword provided in the control Tx beam 1203 and the second transport block may be mapped on to a second codeword provided in control Tx beam 1204. The codeword may be associated with: a specific beam or beam ID, a BRS, and/or a time/frequency location. As used herein, a codeword represents user data before it is formatted for transmission.

Ex. 1004, [0169]. Petitioner even admits that “*Lee* explains that the terms control, control signal, control channel, control channel beam, and PDCCH (among other terms) may be used interchangeably.” Pet. at 15, n.6. This implies that, when Lee states that “transport block 1201 may be associated with *control Tx beam 1203* and transport block 1202 may be associated with *control Tx beam 1204*,” transport block 1201 is associated with *one control signal 1203* and transport block 1202 may be associated with *another control signal 1204*. Ex. 1004, [0169].

In an attempt to misrepresent the claimed requirements, Petitioner contends that “[t]he ’081 patent does not preclude the ‘second radio signal’ from having multiple portions.” Pet. at 16 (citations omitted). However, Petitioner’s cites referring to Fig. 7 of the ’081 Patent are not related to the first signal at all. Fig. 7 (represented below) does not indicate a second radio signal with multiple *portions*, but rather explicitly describes (i) that *the first radio signal* (*i.e.*, not the second radio signal) can comprise different multi-carrier symbols and (ii) that the multi-carrier

symbols can change at a “first time point” between a first receiving beam and second receiving beam. In fact, the second signal only has one multi-carrier symbol in Fig.

7.

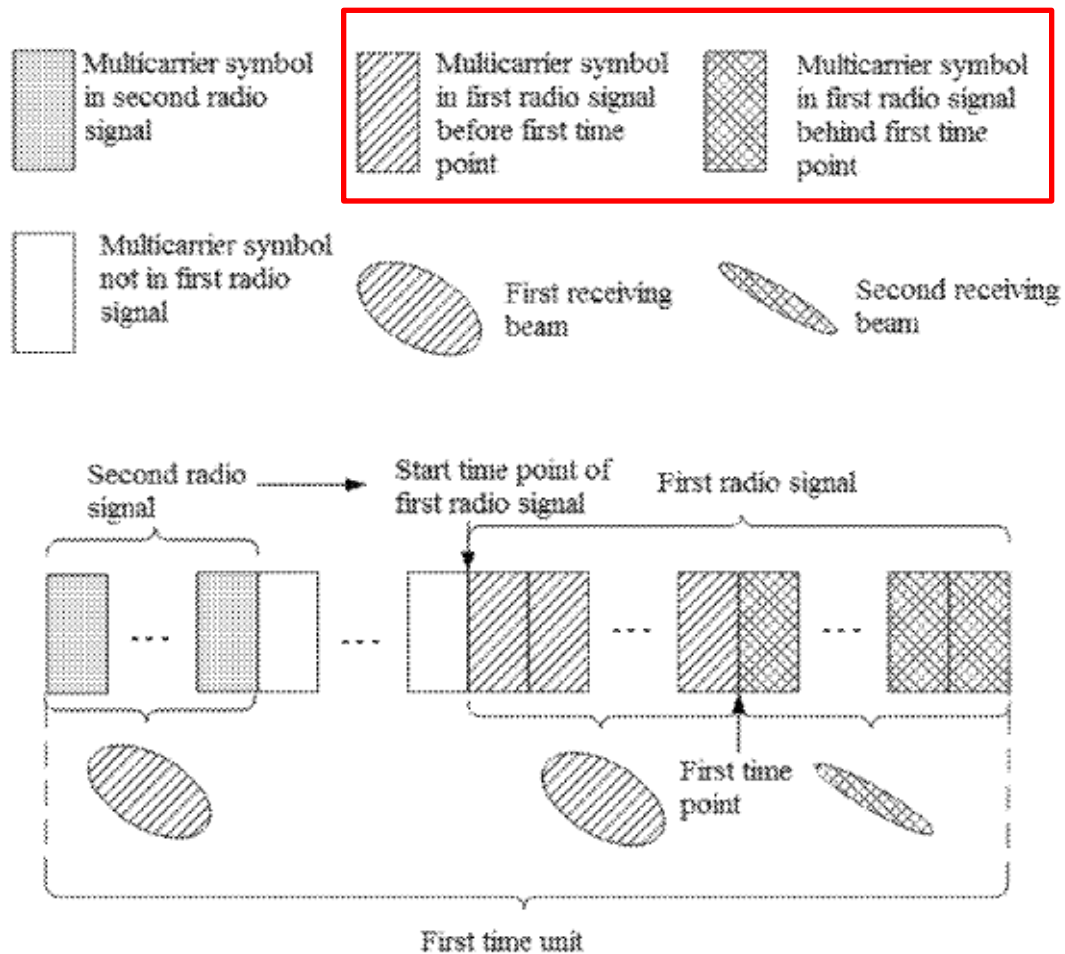


FIG. 7

Ex. 1001, Fig. 7.

Aside from misrepresenting the disclosure of the '081 Patent, each of B1 1203 and B1 1204 in Lee are not different portions of one signal anyway, as discussed

above. The Board should reject Petitioner’s misguided attempt to construct a single “second radio signal” where there is none.

Therefore, Petitioner fails to show that Lee anticipates this claim limitation.

b. Lee Does Not Disclose “receiving a first radio signal,” as Required by Claim 1

Claim 1 recites “receiving a first radio signal.” Lee neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 21-23.²

Petitioner argues that TB1 and TB2 are collectively the claimed first radio signal. But, as with Petitioner’s argument with respect to the “second radio signal,” TB1 and TB2 are separate signals. The Abstract of Lee, and elsewhere in Lee, explicitly describes at least one control signal and *two subsequent data signals*, that correspond to the control signal(s).

The WTRU includes a receiver configured to receive, in a time transmission interval (TTI), at least one control signal and a *first data signal using a first beam associated with a first beam identifier (ID) and a second data signal, subsequent to the first data signal, using a second beam associated with a second beam ID different from the first beam ID*, such that one of the at least one control signal indicates the second beam ID; and a processor configured to switch a receive beam of the receiver from the first beam to the second beam based on the second beam ID to receive the second data signal.

² The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 84-87) for its assertion that this disclosure in Lee meets the limitation, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 84-87.

Ex. 1004, Abstract.

According to another embodiment, a method implemented by a WTRU includes *receiving, in a time transmission interval (TTI)*, at least one control signal, *a first transport block and a second transport block*. The at least one control signal and the first transport block are received using a first beam, and the second transport block is received using a second beam that has a beam width that is more narrow than a beam width of the first beam. In addition, the first transport block and the second transport block are multiplexed using time division multiplexing such that the second transport block is received subsequent to the first transport block. The method further includes switching a receive beam of the WTRU from the first beam to the second beam, to receive the second transport block, based on beam information associated with the second beam received in one of the at least one control signal.

Id. at [0259].

With respect to Fig. 12 of Lee, which Petitioner relies upon (Pet. at 17), the disclosure of Lee is clear that TB1 and TB2 are “individual” signals in a “dual TB transmission” with different data carried, and different modulation and coding schemes:

Referring now to FIG. 12, FIG. 12 shows a diagram for a *dual TB transmission scheme*. *Two or more transport blocks* may be transmitted with a same beam as the control channel, or may be transmitted with different beams. For example, FIG. 12 illustrates two transport blocks 1201 and 1202 transmitted (multiplexed) in a TDM fashion within a single TTI (e.g., TTI1). The transmission of the *individual* transport blocks may use the same beam as the control

channel (e.g., transport block 1201 which uses a wide beam), or may use a different beam (e.g., transport block 1202 which uses a narrow beam). In the latter case, the narrow beam ID may need to be signaled in the control region of the TTI.

In particular, as shown in FIG. 12, a first TB (TBI) may use the same wide beam or the same beam ID as the control channel, and a second TB (TB2) may use a narrow beam or a beam ID that is different from the beam ID used by the control channel. The beam ID for TB2 may be signal in a DCI transmitted in control data B1 that is associated with TB2. In addition, the *dual TB transmission scheme* shown in FIG. 12 may be used to carry out a fallback transmission, to be described in more detail below. As a fallback mechanism, *data carried by TBI may be a subset of the data carried by TB2, and TBI may use a lower modulation and coding scheme (MCS) value than TB2.*

Ex. 1004, [0167]-[0168].

Lee discloses no scenario in which B1 1203 and B1 1204 collectively comprise one radio signal and TB1 and TB2 collectively comprise another radio signal.

Therefore, Petitioner fails to show that Lee anticipates this claim limitation.

c. Lee Does Not Disclose “wherein the first radio signal is transmitted within a first time unit” or “the second radio signal is transmitted within the first time unit,” as Required by Claim 1

Claim 1 recites “wherein the first radio signal is transmitted within a first time unit” and “the second radio signal is transmitted within the first time unit.” Lee

neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 19-20, 24.³

Since Petitioner fails to show how Lee discloses “the first radio signal” or “the second radio signal,” it cannot now disclose “wherein the first radio signal is transmitted within a first time unit” and “the second radio signal is transmitted within the first time unit,” as required by this claim limitation. *See supra* Section VI.A.1(a)-(b).

Petitioner argues that Lee’s disclosed TTI is the claimed “first time unit.” Pet. at 19. However, Lee’s time transmission interval (TTI) describes a time interval in which to send (i) at least one control signal and two different data signals or (ii) at least one control signal and two different transport blocks, as shown in Fig. 12, which Petitioner annotates, and described further below.

According to an embodiment, a WTRU is configured to perform wireless communications in higher frequency bands using a fallback scheme. The WTRU includes a receiver configured to receive, *in a time transmission interval (TTI), at least one control signal and a first data signal using a first beam associated with a first beam identifier (ID) and a second data signal, subsequent to the first data signal*, using a second beam associated with a second beam ID different from the first beam ID. . .

³ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 88-89, 97) for its assertion that this disclosure in Lee meets the limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 88-89, 97.

According to an embodiment, a method implemented by a WTRU includes receiving, *in a time transmission interval (TTI), at least one control signal and a first data signal using a first beam associated with a first beam identifier (ID) and a second data signal, subsequent to the first data signal*, using a second beam associated with a second beam ID different from the first beam ID...

According to an embodiment, a wireless communication device is configured to perform wireless communications in higher frequency bands using a fallback scheme. The wireless communication device includes a transmitter configured to transmit, *in a time transmission interval (TTI), at least one control signal and a first data signal using a first beam associated with a first beam identifier (ID) and a second data signal, subsequent to the first data signal*, using a second beam associated with a second beam ID different from the first beam ID. . .

According to an embodiment, a method implemented in a wireless communication device includes a transmitting, *in a time transmission interval (TTI), at least one control signal and a first data signal using a first beam associated with a first beam identifier (ID) and a second data signal, subsequent to the first data signal*, using a second beam associated with a second beam ID different from the first beam ID. . .

Ex. 1004, [0006]-[0009]

As noted in Section V.A.1.b. above, each of the transport blocks are referred explicitly as “a first data signal” and “a second data signal” in the specification of Lee, which directly contradicts Petitioner’s claims that the transport blocks are just portions of the same signal.

Therefore, Petitioner fails to show that Lee anticipates these claim limitations.

d. Lee Does Not Disclose “first bit block is used for generating the first radio signal,” as Required by Claim 1

Claim 1 of the '081 Patent recites “first bit block is used for generating the first radio signal.” Lee neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 20-21.⁴

Since Petitioner fails to show how Lee discloses, teaches, or suggests “the first radio signal,” it cannot now disclose, teach, or suggest “first bit block is used for generating the first radio signal,” as required by this claim limitation. *See supra* Section VI.A.1(b).

Petitioner argues that Lee’s “transport block (MAC PDU)” is the claimed “first bit block.” Pet. at 20-21. Even granting Petitioner’s alleged “first bit block” as the “transport block (MAC PDU), Petitioner’s annotated Fig. 13 itself shows how Lee’s transport block (MAC PDU) generates two different signals (*i.e.*, TB1 and TB2) from two different code blocks and two different code words (CW) emphasized below.

⁴ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 90-92) for its assertion that this disclosure in Lee meets the limitation, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 90-92.

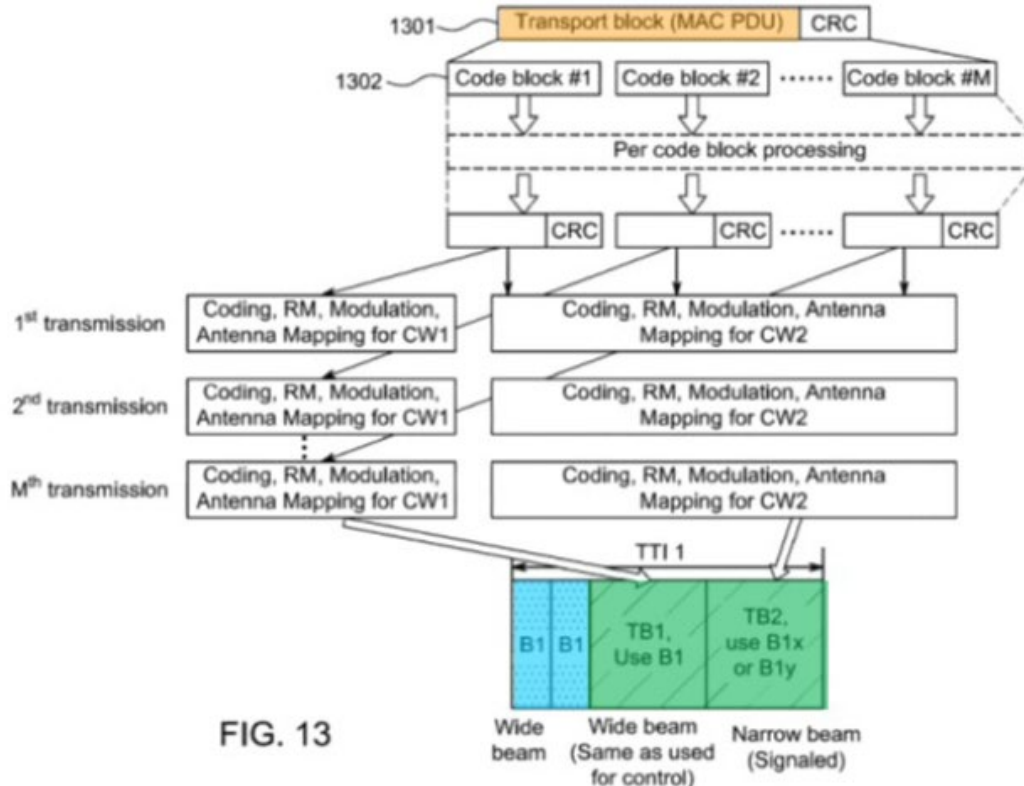


FIG. 13

Lee, FIG. 13 (annotated).

Pet. at 21. The specification of Lee confirms this understanding that there are a number of sub-blocks (or code blocks) that the MAC PDU is partitioned in to reach the two different TB signals:

In one example, for the data fallback transmission, the DCI may include the following: a field indicating that *a single MAC PDU is transmitted using the 2 CW scheme, a field indicating the number M of sub-blocks (or code blocks) the MAC PDU is partitioned in for mapping to codeword #1* (see e.g., FIG. 13 and FIG. 14), and the index (in the range 1 to M) of the sub-block (or code block) transmitted in the current TTI. The maximum value of M may be predefined. The choice for the maximum value of M may be a trade-off between the maximum transport block size

to be transmitted with the fallback scheme, and the maximum number of TTIs *the MAC PDU may be transmitted due to sub-block or code-block partitioning for transmission on codeword #1*.

Id. at [0228].

Therefore, Petitioner fails to show that Lee anticipates this claim limitation.

e. Lee Does Not Disclose “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols,” as Required by Claim 1

Claim 1 of the '081 Patent recites “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols.” Lee neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 24-26.⁵

Since Petitioner fails to show how Lee discloses, teaches, or suggests “a second radio signal,” it cannot now disclose, teach, or suggest “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols.” *See supra* Section VII.A.1(a).

Petitioner summarily states that “Lee discloses that the control channel may carry scheduling information for the data channel” discloses this claim limitation.

⁵ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 98-100) for its assertion that this disclosure in Lee meets the limitation, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 98-100.

However, Petitioner's cited portion of Lee showing that "scheduling information in the physical downlink control channel" (Ex. 1004, [0110]) provides no indication of "determining a time-domain resource occupied by the G multicarrier symbols" of the first data signal.

Even if Lee's "scheduling information" determined a time-domain resource, Lee does not use a single signal to determine a time-domain resource for another single signal. Instead, Lee describes that each different control beam (*e.g.*, control Tx beam 1203 and control Tx beam 1204) would indicate scheduling information for their respective transport blocks (*e.g.*, transport block 1201 and transport block 1202), not both transport blocks collectively (and, therefore, would not cover a time domain resource occupied by all G multicarrier symbols for the first radio signal):

In an example which the two transport blocks may be transmitted in a TDM fashion, the control channel and the DL data assignment may be in the same TTI. For example, *transport block 1201 may be associated with control Tx beam 1203 and transport block 1202 may be associated with control Tx beam 1204. The first transport block may be mapped on to a first codeword provided in the control Tx beam 1203 and the second transport block may be mapped on to a second codeword provided in control Tx beam 1204.* The codeword may be associated with: a specific beam or beam ID, a BRS, and/or a time/frequency location. As used herein, a codeword represents user data before it is formatted for transmission.

Id. at [0169].

Therefore, Petitioner fails to show that Lee anticipates this claim limitation.

- f. Lee Does Not Disclose “as for any one given multicarrier symbol of the G multicarrier symbols, the multi-antenna related receiving for the given multicarrier symbol is related to the relative position of a time-domain resource occupied by the given multicarrier symbol with respect to a first time point in time domain,” “when the time-domain resource occupied by the given multicarrier symbol is behind the first time point, the second radio signal is used for determining the multi-antenna related receiving for the given multicarrier symbol,” and “when the time-domain resource occupied by the given multicarrier symbol is before the first time point, the multi-antenna related receiving for the given multicarrier symbol is related to the multi-antenna related receiving for the second radio signal,” as Required by Claim 1**

Claim 1 of the '081 Patent recites “as for any one given multicarrier symbol of the G multicarrier symbols, the multi-antenna related receiving for the given multicarrier symbol is related to the relative position of a time-domain resource occupied by the given multicarrier symbol with respect to a first time point in time domain,” “when the time-domain resource occupied by the given multicarrier symbol is behind the first time point, the second radio signal is used for determining the multi-antenna related receiving for the given multicarrier symbol,” and “when the time-domain resource occupied by the given multicarrier symbol is before the first time point, the multi-antenna related receiving for the given multicarrier symbol is related to the multi-antenna related receiving for the second radio signal.” Lee

neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 26-32.⁶

Since Petitioner fails to show how Lee discloses, teaches, or suggests “a second radio signal,” it cannot now disclose, teach, or suggest “when the time-domain resource occupied by the given multicarrier symbol is behind the first time point, the second radio signal is used for determining the multi-antenna related receiving for the given multicarrier symbol,” and “when the time-domain resource occupied by the given multicarrier symbol is before the first time point, the multi-antenna related receiving for the given multicarrier symbol is related to the multi-antenna related receiving for the second radio signal.” *See supra* Section VII.A.1(a).

Petitioner argues that these claim limitations are met solely because TB1 (wide beam) changes to TB2 (narrow beam) at a given time point. Pet. at 27-28. Petitioner arbitrarily argues that the time point between TB1 and TB2 in Lee or between wide beam to narrow beam is the claimed “first time point in a time domain.” *Id.* However, Petitioner and Lee are generally silent about using this time point as a metric related to the time domain resource occupied by *any given multicarrier symbol* out of the G multicarrier symbols because Lee discloses little

⁶ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 101-108) for its assertion that this disclosure in Lee meets the limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 101-108.

more than describing that signals may be comprised of multicarrier symbols. *See* Pet. at 45-47, 53. Petitioner does not and cannot make the leap required to show that Lee discloses a relational nature of any given multicarrier symbol to the relative position of the time-domain resource occupied by the said multicarrier symbol with respect to first time point.

Therefore, Petitioner fails to show that Lee anticipates these claim limitations.

g. Lee Does Not Disclose “the first time point is one time point within the first time unit,” as Required by Claim 1

Claim 1 of the '081 Patent recites “the first time point is one time point within the first time unit.” Lee neither discloses nor anticipates this claim limitation, as Petitioner incorrectly asserts. Pet. at 32.⁷

As demonstrated in Section VI.A.1(f), Petitioner arbitrarily argues that the time point between TB1 and TB2 in Lee or between wide beam to narrow beam is the claimed “first time point in a time domain.” However, Petitioner and Lee are generally silent about using this time point as a metric related to the time domain resource occupied by any given multicarrier symbol out of the G multicarrier symbols. Since Lee does not disclose the claimed “first time point,” Lee cannot now

⁷ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶ 109) for its assertion that this disclosure in Lee meets the limitation, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶ 109.

disclose “the first time point is one time point within the first time unit,” as required by the claimed limitation.

Therefore, Petitioner fails to show that Lee anticipates this claim limitation.

2. Independent Claims 5, 9, and 11

Claim 5 recites “[a] method in a base station device for wireless communication” that mirrors the claim limitations of Claim 1, which recites “[a] method in a User Equipment (UE) for wireless communication.” In other words, Claim 5 discloses a method from the perspective of the base station that is in communication with the UE in Claim 1. For at least the same reasons as Claim 1, Lee fails to anticipate Claim 5.

Claim 9 recites “[a] UE for wireless communication,” which is the apparatus claim of Claim 1. For at least the same reasons as Claim 1, Lee fails to anticipate Claim 1.

Independent Claim 11 recites “[a] base station device for wireless communication” that mirrors the claim limitations of Claim 9, which recites “[a] UE for wireless communication.” In other words, Claim 11 discloses the base station device that is in communication with the UE in Claim 9. For at least the same reasons as Claim 9, Lee fails to anticipate Claim 11.

3. Dependent Claims 2-4, 6-8, 10, and 12

Claims 2-4 are dependent on Claim 1, Claims 6-8 are dependent on Claim 5, Claim 10 is dependent on Claim 9, and Claim 12 is dependent on Claim 11. Therefore, Claims 2-4, 6-8, 10, and 12 are not anticipated by Lee for at least the same reasons as Claims 1, 5, 9, and 11, respectively.

B. Claims 1-12 are Not Obvious Over Chen in Combination with Lee

1. Independent Claim 1

a. Chen in Combination with Lee Does Not Disclose “first bit block is used for generating the first radio signal,” as Required by Claim 1

Claim 1 of the '081 Patent recites “first bit block is used for generating the first radio signal.” Chen in combination with Lee neither discloses nor renders this claim limitation obvious, as Petitioner asserts. Pet. at 55-58.⁸

Petitioner cannot and does not rely on Chen to disclose “a first bit block [] used for generating the first radio signal” and, instead, relies on “*Lee*’s teachings of a data message generated by a bit block (*e.g.*, MAC PDU)” that Petitioner alleges could be implemented into *Chen*’s method. Pet. at 56.

However, Lee’s MAC PDU does not generate a first radio signal. As described

⁸ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 195-209) for its assertion that Chen in combination with Lee renders obvious these limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 195-209.

in Section VI.A.1.d, Lee’s alleged transport block (MAC PDU) generates two different signals (*i.e.*, TB1 and TB2) from two different code blocks and two different code words (CW) instead of one radio signal.

For at least the reasons noted above in Sections VI.A.1.d, Chen in combination with Lee does not render obvious this claim limitation.

b. Chen in Combination with Lee Does Not Disclose “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols,” as Required by Claim 1

Claim 1 of the ’081 Patent recites “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols.” Chen in combination with Lee neither discloses nor renders this claim limitation obvious, as Petitioner asserts. Pet. at 59-60.⁹

Petitioner cannot and does not rely on Chen to disclose “the second radio signal is used for determining a time-domain resource occupied by the G multicarrier symbols.” The specification of Chen does not even mention multicarrier symbols. *See generally* Ex. 1012. Instead, Petitioner relies on “Lee’s teachings of using multicarrier symbols (*e.g.*, OFDM symbols) into *Chen*’s method.” Pet. at 56.

⁹ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 211-215) for its assertion that Chen in combination with Lee renders obvious these limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 211-215.

However, Lee neither discloses a “second radio signal” or a “second radio signal [] used for determining a time-domain resource occupied by the G multicarrier symbols.” As described in Section VI.A.1.a, Lee does not disclose a second radio signal but two different control blocks (*e.g.*, B1 1203 and B1 1204). Further, as described in Section VI.A.1.e, Lee’s disclosure that “the control channel may carry scheduling information for the data channel” is irrelevant to this claim limitation. because (i) Lee’s “scheduling information in the physical downlink control channel” provides no indication of “determining a time-domain resource occupied by the G multicarrier symbols” of the first data signal. Ex. 1004, [0110]; and (ii) even if Lee’s “scheduling information” determined a time-domain resource, Lee does not use a single signal to determine a time-domain resource for another single signal comprised of G multicarrier symbols.”

For at least the reasons noted above in Sections VI.A.1.a and VI.A.1.e, Chen in combination with Lee does not render obvious this claim limitation.

- c. **Chen in Combination with Lee Does Not Disclose** “as for any one given multicarrier symbol of the G multicarrier symbols, the multi-antenna related receiving for the given multicarrier symbol is related to the relative position of a time-domain resource occupied by the given multicarrier symbol with respect to a first time point in time domain,” “when the time-domain resource occupied by the given multicarrier symbol is behind the first time point, the second radio signal is used for determining the multi-antenna related receiving for the given multicarrier symbol,” and “when the time-domain resource occupied by the given multicarrier symbol is before the first time point, the multi-antenna related receiving for the given multicarrier symbol is related to the multi-antenna related receiving for the second radio signal,” as Required by Claim 1

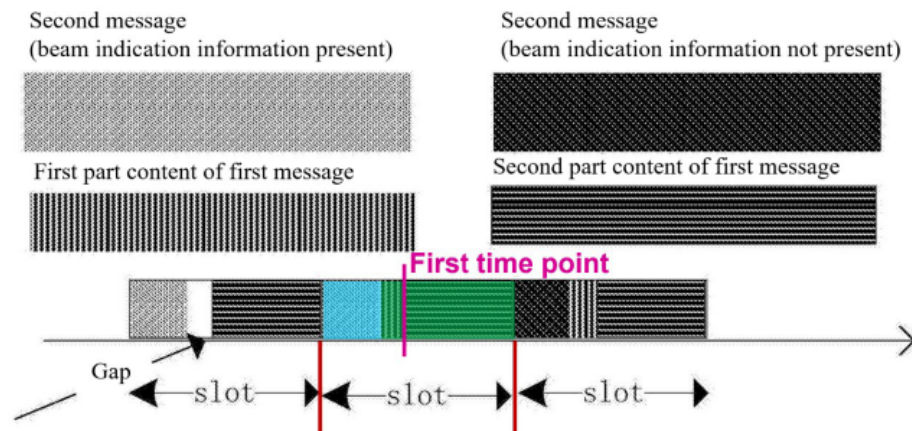
Claim 1 of the '081 Patent recites “as for any one given multicarrier symbol of the G multicarrier symbols, the multi-antenna related receiving for the given multicarrier symbol is related to the relative position of a time-domain resource occupied by the given multicarrier symbol with respect to a first time point in time domain,” “when the time-domain resource occupied by the given multicarrier symbol is behind the first time point, the second radio signal is used for determining the multi-antenna related receiving for the given multicarrier symbol,” and “when the time-domain resource occupied by the given multicarrier symbol is before the first time point, the multi-antenna related receiving for the given multicarrier symbol

is related to the multi-antenna related receiving for the second radio signal.” Chen in combination with Lee neither discloses nor renders this claim limitation obvious, as Petitioner asserts. Pet. at 60-66.¹⁰

As noted above in Section VI.B.1.b, Chen does not mention multicarrier symbols at all in its specification, and therefore cannot disclose, teach, or suggest any of these claim limitations. *See generally* Ex. 1012. At least for this reason, Chen cannot disclose the relational nature of receiving ***any given multicarrier symbol*** to the relative position of the time-domain resource occupied by that multicarrier symbol with respect to Petitioner’s alleged first time point.

Petitioner argues that Chen discloses this claim limitation through the time point between the first part and the second part of the first message, where receiver parameters are changed from a default parameter to a target parameter, as shown in an annotated version of Fig. 4. Pet. at 61-62.

¹⁰ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶¶ 216-223) for its assertion that Chen in combination with Lee renders obvious these limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶¶ 216-223.



Chen, FIG. 4 (annotated); *Chen Priority*, FIG. 4.

Pet. at 61. None of Chen’s disclosed receiver parameters describe receiving a multicarrier symbol based on its occupied time-domain resource relative to the first time point or changing reception of such multicarrier symbols.

The portion of Chen’s specification discussing Fig. 4 is similarly silent on receiving a multicarrier symbol based on its occupied time-domain resource relative to the first time point, and merely describes determining whether to decode the second part content or discard the first part content of the first message in order to “improve the accuracy of receiving end device decoding”:

In this implementation, because said second message includes parameter indication information, said receiving end device uses said ***target receiver parameter indicated by said parameter indication information to decode said second part content***, wherein said transmitting end device has not yet transmitted said first part content. For example, the first slot shown in FIG. 4. It is possible in this way to ***improve the accuracy of receiving end device decoding***.

In addition, when the second message includes parameter indication information, *it is possible to discard said first part content and use said target receiver parameter indicated by said parameter indication information to decode said second part content*. That is, it is possible to discard the first part content of the second slot shown in FIG. 4, while also being able *to ensure performance between the transmitting end device and the receiving end device because the transmitting end device in this situation may transmit non-important information in the first part content and important information in the second part content*. Of course, the embodiments of the present disclosure are not limited to the above; when the first message includes parameter indication information, the transmitting end device may also transmit important information in the first part content and transmit non-important information in the second part content.

In addition, when the second message includes parameter indication information, *the default receiver parameter may be used to decode said first part content, and said target receiver parameter indicated by said parameter indication information may be used to decode said second part content*. Thus, it is possible for the receiving end to precisely decode first part and second part content.

In addition, when the second message does not include parameter indication information, the default receiver parameter may be used to decode said first part content and said second part content. That is, the third slot shown in FIG. 4.

Ex. 1012, 17-18.

In contrast to goals of determining whether to decode or discard part of the first message in Chen, at least one of the benefits of determining multi-antenna related receiving depending on the “relative position of a time-domain resource

occupied by the given multicarrier symbol with respect to a first time point in time domain” in the ’081 Patent is to “avoid[] the problem of delay” between the second and first signal due to decoding:

In one embodiment, the above method is advantageous in that the delay in the receiving of the first radio signal resulted from the delay in the decoding of the second radio signal is avoided.

In one embodiment, the above method is advantageous in that, before the first time point, the PDSCH receives the multicarrier symbol of the PDSCH before the first time point using the same beam used for receiving the PDCCH, thereby avoiding the problem of the delay in PDSCH transmission resulted from the delay in PDCCH decoding.

Ex. 1001, 4:24-37. Chen is directed to different set of problems and solutions.

Therefore, Chen in combination with Lee does not render obvious this claim limitation.

d. Chen in Combination with Lee Does Not Disclose “the first time point is one time point within the first time unit,” as Required by Claim 1

Claim 1 of the ’081 Patent recites “the second time window and the third time window have overlapped time domain resource(s).” Chen in combination with Lee neither discloses nor renders this claim limitation obvious, as Petitioner asserts. Pet.

at 66.¹¹

As demonstrated in Section VI.B.1.c, Petitioner, Chen, and Lee are all silent about using such alleged “first time point” as a metric related to the claimed “time domain resource occupied by any given multicarrier symbol out of the G multicarrier symbols.” Since Chen in combination with Lee does not disclose the claimed “first time point,” Chen in combination with Lee cannot now show “the first time point is one time point within the first time unit,” as required by the claimed limitation.

Therefore, Chen in combination with Lee does not render obvious this claim limitation.

2. Independent Claims 5, 9, and 11

Claim 5 recites “[a] method in a base station device for wireless communication” that mirrors the claim limitations of Claim 1, which recites “[a] method in a User Equipment (UE) for wireless communication.” In other words, Claim 5 discloses a method from the perspective of the base station that is in communication with the UE in Claim 1. For at least the same reasons as Claim 1, Chen in combination with Lee does not render obvious Claim 5.

Claim 9 recites “[a] UE for wireless communication,” which is the apparatus

¹¹ The Petition cites the expert Declaration of Dr. Kakaes (Ex. 1002, ¶ 224) for its assertion that that Chen in combination with Lee renders obvious these limitations, but this portion of the Kakaes Declaration merely repeats the Petition and should, therefore, be given no weight. *See infra* Sec. VIII; Ex. 2003, ¶ 224.

claim of Claim 1. For at least the same reasons as Claim 1, Chen in combination with Lee does not render obvious Claim 9.

Independent Claim 11 recites “[a] base station device for wireless communication” that mirrors the claim limitations of Claim 9, which recites “[a] UE for wireless communication.” In other words, Claim 11 discloses the base station device that is in communication with the UE in Claim 9. For at least the same reasons as Claim 9, Chen in combination with Lee does not render obvious Claim 11.

3. Dependent Claims 2-4, 6-8, 10, and 12

Claims 2-4 are dependent on Claim 1, Claims 6-8 are dependent on Claim 5, Claim 10 is dependent on Claim 9, and Claim 12 is dependent on Claim 11. Therefore, Claims 2-4, 6-8, 10, and 12 are not anticipated by Lee for at least the same reasons as Claims 1, 5, 9, and 11, respectively.

VII. THE PETITION SHOULD BE DENIED IN THE DISCRETION OF THE DIRECTOR UNDER 35 U.S.C. § 314(A)

Based on Petitioner’s reasons regarding § 314(a), the Board should exercise its discretion to deny this Petition.

The circumstances of the parallel District Court Litigation necessitate denial of the Petition under the Board’s precedent, as every factor considered in relation to efficiency, fairness, and the merits supports denial. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, at 6 (P.T.A.B. Mar. 20, 2020) (precedential) (considering

(a) “whether the petitioner and the defendant in the parallel proceeding are the same party”; (b) “overlap between issues raised in the petition and in the parallel proceeding” (c) “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision”; (d) “investment in the parallel proceeding by the court and the parties”; (e) “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted”; and (f) “other circumstances that impact the Board’s exercise of discretion, including the merits.”).

As set forth below, these factors collectively demonstrate that efficiency and integrity of the AIA are best served by denying review. First, the Petitioner is the Defendant in the parallel proceeding. *See infra* Section VII.A. Second, the Challenged Claims are all at issue in the District Court Litigation, and Petitioner has raised identical arguments for invalidity there. *See infra* Section VII.B. Third, trial in the District Court Litigation is set for June 24, 2024, four months earlier than the projected statutory deadline for a Final Written Decision of this Petition in October 9, 2024. *See infra* Section VII.C. Fourth, the parties (and Patent Owner in particular) have invested significant resources on developing legal and factual issues of validity and infringement in the District Court Litigation and will have invested substantially more resources before any decision on this Petition. *See infra* Section VII.D. Fifth, the Court has already denied a stay pending this Petition. *See infra* Section VII.E. Finally, no other factors favor institution. *See infra* Section VII.F.

Accordingly, the Board should exercise its discretion under § 314(a) and deny the Petition because institution of this proceeding would not be consistent with the objective of the AIA to “provide an effective and efficient alternative to District Court litigation.” *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8, at 20 (P.T.A.B. Sept. 12, 2018) (quoting *Gen. Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19, at 16–17 (P.T.A.B. Sept. 6, 2017) (precedential)).

A. The Parallel District Court Litigation and the Petition Involve the Same Parties

As noted in Patent Owner’s Mandatory Notice, there exists a parallel District Court Litigation between the same parties regarding the same subject patent (the ’081 Patent). *Samsung Elecs. Co., Ltd. et al., v. Apex Beam Techs. LLC*, IPR2023-00599, Paper 5 at 2-3 (P.T.A.B. Mar. 21, 2023); Pet. at 85. Accordingly, this factor weighs in favor of discretionary denial.

B. The District Court Litigation Involves Substantially the Same Claims, Grounds, Arguments, and Evidence

This Petition is co-extensive with invalidity arguments that Petitioner has already raised in the District Court Litigation. Ex. 2001, at 58-60. “In at least these ways, the parallel proceedings would duplicate effort. This is an inefficient use of Board, party, and judicial resources and raises the possibility of conflicting decisions.” *Cisco Sys., Inc. v. Ramot at Tel Aviv Univ. Ltd.*, IPR2020-00122, Paper

15 at 10 (P.T.A.B. May 15, 2020). Accordingly, this fact weighs strongly in favor of discretionary denial.

For this reason, denial of institution under § 314(a) is appropriate because the Petition “includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel [District Court] proceeding.” *Fintiv*, IPR2020-00019, Paper 11, at 12.

C. Proximity of the District Court’s Trial Date

The proximity of the District Court Litigation’s trial date to the Board’s projected statutory deadline for a Final Written Decision strongly weighs in favor of discretionary denial.

The parties’ trial is scheduled for June 24, 2024. Exhibit 1017 (Docket Control Order, Dkt. 37, *Apex Beam Techs. LLC v. Samsung Elecs. Co., Ltd., et al.*, Case No. 2:22-cv-00188-JRG (E.D. Tex. Feb. 6, 2023)). Pursuant to 35 U.S.C. §§ 314(b)(1) and 316(a)(11), the projected statutory deadline for a Final Written Decision of this Petition is October 24, 2024.¹² As the District Court’s trial will be four months before the projected statutory deadline, this factor weighs strongly in favor of denying

¹² Petitioner incorrectly states that “[a] FWD is anticipated in August 2024, about one month after trial ends.” Pet. at 84. Pursuant to U.S.C. § 314(b)(1), an Institution Decision is due, three months after this Preliminary Response, on October 24, 2023. Pursuant to 35 U.S.C. § 316(a)(11), a Final Written Decision is due one year after an Institution Decision, on October 24, 2024.

institution. *See Supercell Oy v. Gree, Inc.*, IPR2020-00513, Paper 11 at 10-12 (P.T.A.B. June 24, 2020) (denying institution where the jury trial was scheduled to conclude approximately ten months before the statutory deadline); *Edward LifeSciences Corp. v. Evalve, Inc.*, IPR2019-01479, Paper 7, at 6-13 (P.T.A.B. Feb. 26, 2020) (denying institution where jury trial would conclude more than nine months before a final decision would be due); *Samsung Elecs. Am., Inc. v. Uniloc 2017 LLC*, IPR2019-01218, Paper 7, at 7-10 (P.T.A.B. Jan. 7, 2020) (denying institution where jury selection was scheduled for approximately six months before trial in the Board proceeding would conclude); *Next Caller Inc. v. TrustID, Inc.*, IPR2019-00961, -00962, Paper 10, at 8-16 (P.T.A.B. Oct. 16, 2019) (denying institution where trial was scheduled to conclude “several months,” before a final decision would be due); *Cisco Sys., Inc.*, IPR2020-00122, Paper 15 at 8 (“Because the trial date is substantially earlier than the projected statutory deadline for the Board’s final decision, this factor weighs in favor of discretionary denial.”).

Petitioner does not contest that the proximity of the trial favors denial of institution. Thus, this factor also weighs in favor of discretionary denial.

D. Significant Investment and Petitioner's Delay in Filing the Petition

The parties' investment in the parallel proceeding weighs in favor of discretionary denial.

In the District Court Litigation, the Court has already filed a Docket Control Order (Dkt. 37), Discovery Order (Dkt. 38), and Protective Order (Dkt. 44). Discovery is also well under way. The parties have already exchanged initial disclosures, infringement contentions pursuant to P.R. 3-1 and invalidity contentions pursuant to P.R. 3-3, and a trial date is set for June 24, 2024, which is less than a year away. Ex. 1017.

As noted above, the two references used in the Petition (Lee and Chen) and Petitioner's corresponding arguments significantly overlap with the claims, references, arguments, and evidence in the District Court Litigation. Petitioner further fails to offer any explanation why the Board should review the same claims on the same grounds which will already have been adjudicated by the District Court based on the parties' investment. Thus, the parties' and the Court's substantial investment in this proceeding weighs in favor of denial of institution under this factor.

E. No Stay of the Parallel District Court Litigation

There is no stay of the parallel District Court Litigation, and Petitioner's

previous motion to stay the case pending *inter partes* reviews, including this *inter partes* review, was denied. Ex. 2002, Order Denying Motion to Stay Pending Inter Partes Review, Dkt. 55, *Apex Beam Techs. LLC v. Samsung Elecs. Co., Ltd., et al.*, Case No. 2:22-cv-00188-JRG (E.D. Tex. June 14, 2023). Even if the Petition was instituted and Petitioner filed a motion to stay the District Court Litigation again, prejudice, tactical disadvantage to Patent Owner, the stage of the litigation and the lack of potential simplification would weigh strongly against such a motion. *See Lennon Image Techs., LLC v. Macy's Retail Holdings, Inc.*, 2:13-CV-00235-JRG, 2014 WL 4652117, at *1 (E.D. Tex. Sept. 18, 2014); *see Intell. Ventures II v. FedEx Corp.*, No. 2:16-cv-00980-JRG, Dkt. 141 at 5 (E.D. Tex. Oct. 24, 2017) (“The Court agrees that the Parties have already invested substantial effort and resources during discovery and in preparing claim construction briefing. . . . These circumstances weigh against staying this case”).

Moreover, a stay would not decrease the burden on the Court and the parties since the instituted IPRs cover only 2 out of at least 22 references that Petitioner raised in the District Court Litigation for both anticipation and obviousness, and challenges under § 112 and § 101. Ex. 2001, at 48-49, 58-60, 68-70. *Intell. Ventures II*, No. 2:16-cv-00980-JRG, Dkt. 141 at 3-4 (“[T]he instituted IPRs only cover a narrow slice of the invalidity arguments Defendants have raised in this case. For example, Defendants have argued that the ’715 Patent is invalid under § 102 with

respect to at least eight references . . . under § 103 with respect to at least twenty-six combinations . . . under § 112 [], and under § 101.”).

Accordingly, it would be unlikely for the Court to hold that a stay would streamline the litigation and this factor supports denial of institution.

F. Other Factors Favor Discretionary Denial

Petitioner does not present a strong case on the merits, further supporting denial of institution. *See supra* Section VI. Petitioner also does not identify any other factors which weigh against discretionary denial. Pet. at 83-85.

Thus, when viewing the factors together, the Petition should be denied in the Director’s discretion under 35 U.S.C. § 314(a).

VIII. PETITIONER’S COPYCAT EXPERT DECLARATION IS ENTITLED TO NO WEIGHT

“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.” 37 C.F.R. § 42.65(a). Here, the Declaration of Dr. Kakaes is almost entirely a recitation of the Petition, except for the Introduction, Qualifications Background, Materials Considered, and Legal Standards sections. *See generally* Ex. 2003. Because Dr. Kakaes barely provides any independent analysis aside from copying the attorney arguments in the Petition and does not disclose the underlying facts or data upon which his opinions are based, his opinion should be entitled to no weight. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-

00624, Paper No. 9 (P.T.A.B. Aug. 24, 2022) (designated precedential Feb. 10, 2023, Paper 12) (denying institution and rejecting a conclusory and unsupported expert declaration that repeated portions of the Petition verbatim.).

IX. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board deny institution of the Petition in its entirety.

Respectfully submitted,

Dated: July 24, 2023

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S PRELIMINARY RESPONSE specified in 37 C.F.R. § 42.24 has 9,980 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

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A copy of PATENT OWNER'S PRELIMINARY RESPONSE and EXHIBITS 2001 through 2003 have been served on Petitioner's counsel of record as follows:

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