

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

WILUS INSTITUTE OF STANDARDS AND TECHNOLOGY INC.,  
Patent Owner.

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IPR2025-00933  
Patent 11,470,595 B2

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Before KRISTEN L. DROESCH, TERRENCE W. McMILLIN, and  
JON M. JURGOVAN, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

### A. *Background and Summary*

Samsung Electronics Co., Ltd., (“Petitioner”)<sup>1</sup> filed a Petition for *inter partes* review of claims 1–12 of U.S. Patent No. 11,470,595 B2 (Ex. 1001, “the ’595 patent”). Paper 2 (“Pet.”), 1. Wilus Institute of Standards and Technology Inc. (“Patent Owner”)<sup>2</sup> filed a Preliminary Response. Paper 10 (“Prelim. Resp.”).

The standard for institution is set forth in 35 U.S.C. § 314(a), which provides that *inter partes* review may not be instituted unless “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” After considering the Petition and the Preliminary Response, as well as the evidence of record, we institute an *inter partes* review as to claims 1–12 of the ’595 patent.<sup>3</sup>

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<sup>1</sup> Petitioner identifies itself, Samsung Electronics Co., Ltd., as well as Samsung Electronics America, Inc., as the real parties-in-interest to this proceeding. Pet. 85.

<sup>2</sup> Patent Owner identifies itself, Wilus Institute of Standards and Technology Inc., as the real party-in-interest to this proceeding. Paper 7, 1.

<sup>3</sup> Prior to any decision on institution, Patent Owner requested (Paper 8) and Petitioner opposed (Paper 9) discretionary denial. An Order was entered that discretionary denial was not appropriate and the Petition was referred to the Board. Paper 11.

A Decision Denying Institution was entered. Paper 12. Petitioner requested rehearing. Paper 13. A Decision Granting [the] Request for Rehearing was entered that vacated the Decision Denying Institution (Paper 12) and provided “that a decision on whether to institute *inter partes* review will be entered in due course.” Paper 14, 6. This is the decision on institution called for in Paper 14.

*B. Related Proceedings*

The parties identify the following district court matters related to the '595 patent: *Wilus Institute of Standards and Technology Inc. v. HP Inc.*, No. 2-24-cv-00752 (E.D. Tex.); and *Wilus Institute of Standards and Technology Inc. v. Samsung Electronics Co., Ltd.*, No. 2-24-cv-00746 (E.D. Tex.). Pet. 85–86; Paper 7, 1–2.

*C. The '595 Patent (Ex. 1001)*

The '595 patent is titled “Wireless Communication Method and Wireless Communication Terminal, Which Use Discontinuous Channel.” Ex. 1001, code (54). The '595 patent seeks to “provide high-efficiency/high-performance wireless LAN communication in a high-density environment” through the efficient signaling of non-contiguous channel allocation. *Id.* at 2:65–67, 5:7–9. In particular, “non-contiguous channel allocation refers to channel allocation in which a band occupied by the transmitted packet (i.e., PPDU [PLCP Protocol Data Unit]) includes at least one non-contiguous channel (or non-contiguous resource unit).” *Id.* at 33:42–46.

In operation, a transmitter may “transmit a packet through at least one channel which is idle based on the result of performing the CCA [clear channel assessment] of multiple channels.” Ex. 1001, 33:66–34:1. “[T]he transmitter signals non-contiguous channel allocation information via a non-legacy preamble of the packet,” such that a “receiver decodes the received packet based on the obtained non-contiguous channel allocation information.” *Id.* at 34:3–9. The “packet may be an HE MU [high-efficiency multi-user] PPDU,” in which a non-legacy preamble of the PPDU includes “a high efficiency signal A field (HE-SIG-A)” and “a high efficiency signal

B field [HE-SIG-B].” *Id.* 34:11–13, 13:44–46, 13:53–59, Fig. 10(b). “[T]he non-contiguous channel allocation information may be signaled via a combination of subfield(s) of the HE-SIG-A and subfield(s) of the HE-SIG-B,” where “[t]he subfield(s) of the HE-SIG-A may signal at least a portion of the non-contiguous channel allocation information, and the subfield(s) of the HE-SIG-B may signal the remaining information.” *Id.* at 39:26–32.

Figure 15 of the ’595 patent illustrates the configuration of an HE-SIG-B field, and is reproduced below, along with an enlarged selection showing only Figures 15(a) and 15(b).

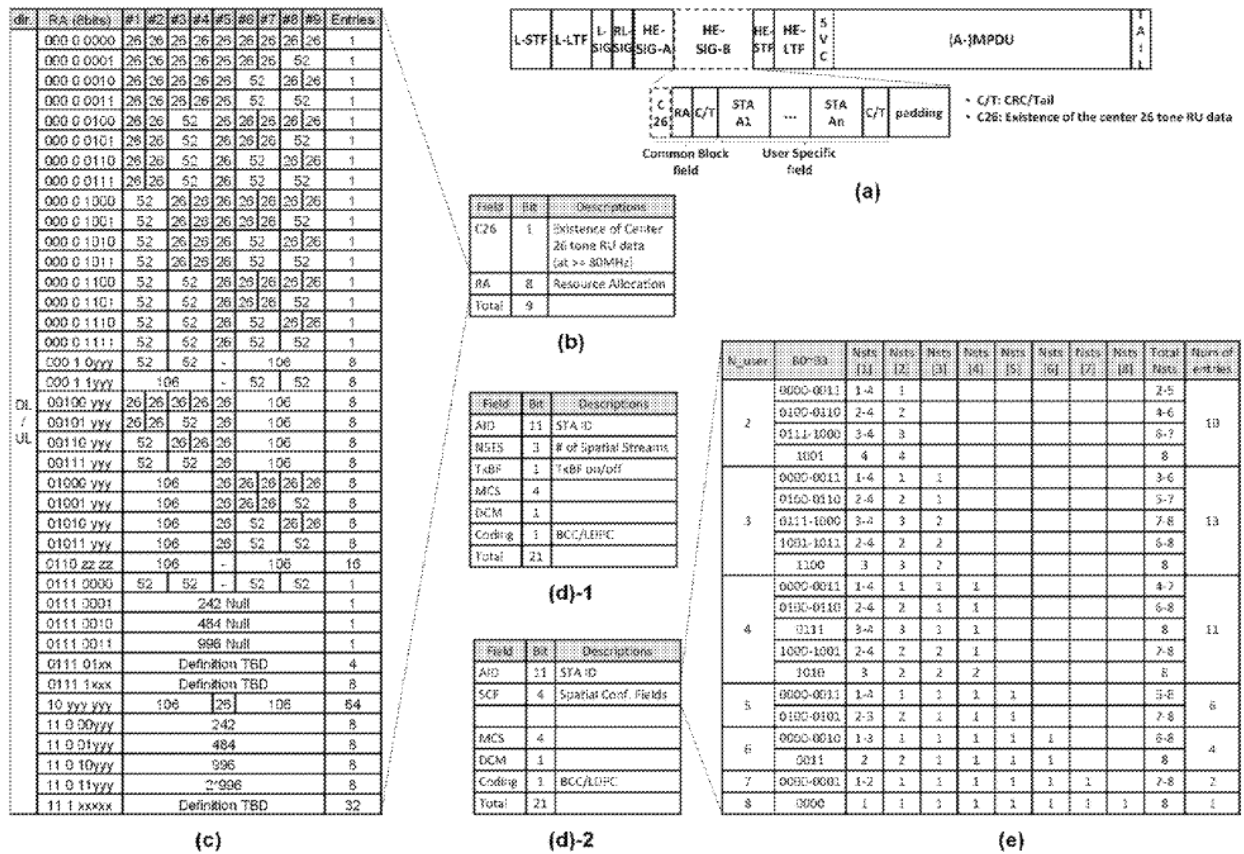
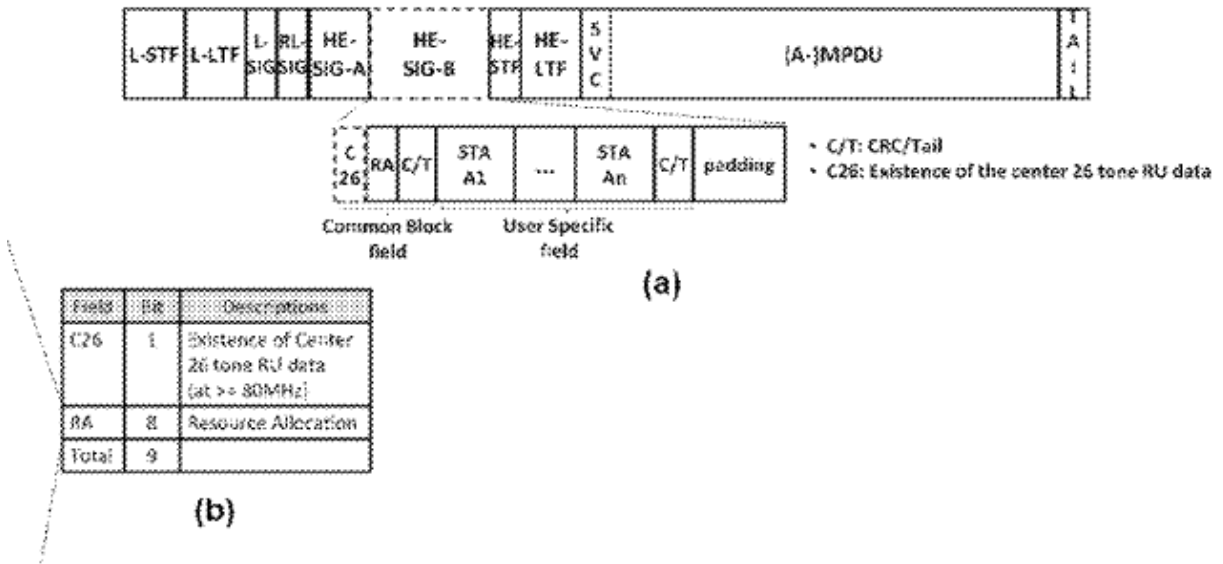


FIG. 15



Figures 15(a) and 15(b)

As shown in Figure 15(a), “the HE-SIG-B consists of a common block field and a user specified field.” Ex. 1001, 21:61–62. “[T]he common block field includes a resource unit allocation (RA) field,” which “contains information on resource unit allocation of a specific bandwidth (e.g., 20 MHz) in the frequency domain.” *Id.* at 21:64–22:3. In an embodiment, “when a PDDU is transmitted through a total bandwidth of 80 MHz or more, the common block field further includes a field (hereinafter, referred to as C26 field) indicating whether a user is allocated to a center 26-tone RU of 80 MHz.” *Id.* at 22:30–34. In this case, “[t]he C26 field may consist of a 1-bit indicator before or after the RA field in the common block field.” *Id.* at 22:34–35; *see id.* Fig. 15(b).

*D. Challenged Claims*

Petitioner challenges claims 1–12 (all) of the '595 patent. Pet. 1. Of the challenged claims, claims 1 and 7 are independent claims. Ex. 1001, 52:50–53:11; 53:53–54:19. Claim 7<sup>4</sup> recites:

[7.pre]<sup>5</sup> A wireless communication method of a wireless communication terminal, the method comprising:

[7.1] receiving a wireless packet including an [sic] high efficiency (HE)-signal (SIG)-A and HE-SIG-B;

[7.2] obtaining bandwidth information indicated via a bandwidth field included in the HE-SIG-A;

[7.3] obtaining information of an unassigned resource unit via at least one subfield included in the HE-SIG-B,

[7.4] wherein the bandwidth field is related to bandwidth over which the received wireless packet is transmitted, and

[7.5] *wherein the bandwidth field of HE-SIG-A is used to obtain the information of the unassigned resource unit*, and

[7.6] decoding a data of the received wireless packet based on the total bandwidth information and the information of the unassigned resource unit,

[7.7] *wherein the unassigned resource unit is explicitly indicated with the information of the unassigned resource unit based on the bandwidth field and the at least one subfield*, and

[7.8] wherein the information of the unassigned resource unit includes information of a C26 field indicating whether a user is allocated to a center 26-tone resource unit of 80 MHz upon the

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<sup>4</sup> Petitioner treats independent claim 7 as exemplary. *See* Pet. 4, 11–29 (Ground 1A), 52–73 (Ground 2). Patent Owner focuses its discussion of the claims in the Preliminary Response on claim 7. *See* Prelim Resp. 5–6, 10–11. In order to follow the arguments of the parties, we also treat claim 7 as exemplary.

<sup>5</sup> The bracketed labels correspond to those used by Petitioner to reference the claim limitations. *See* Pet. vii. We use the same labels for ease of reference, understanding, and consistency.

bandwidth related to a transmission of the received wireless packet indicated by the bandwidth field being 80 MH or more, not 20 MHz or 40 MHz.

Ex. 1001, 53:53–54:19 (emphasis added to disputed limitations).

*E. The Asserted Grounds*

Petitioner challenges claims 1–12 of the '595 patent based on the grounds set forth in the table below. Pet. 1.

<b>Claims Challenged</b>	<b>35 U.S.C. §</b>	<b>Reference(s)</b>
1–12	103 <sup>6</sup>	Josiam <sup>7</sup>
1–6	103	Josiam, Seok <sup>8</sup>
1–12	103	Chen <sup>9</sup> , Wu <sup>10</sup>

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<sup>6</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103, and was effective on March 16, 2013. The application for the '595 patent is U.S. Application No. 16/868,525, filed on May 6, 2020, which claims priority, through another U.S. patent application and a PCT application, to a number of Korean applications, the earliest of which was filed on December 24, 2015. Ex. 1001, codes (21), (22), (30), (63), 1:9–30. Because the application for the '595 patent claims an earliest priority date after the effective date of the applicable AIA amendment, the post-AIA version of § 103 applies for purposes of institution.

<sup>7</sup> US 2016/0330300 A1, published Nov. 10, 2016, filed Apr. 4, 2016 (Ex. 1005). Josiam claims priority to four U.S. provisional patent applications that were filed on May 5, 2015; July 7, 2015; August 11, 2015; and September 10, 2015 (*id.* at code (60), ¶ 1).

<sup>8</sup> US 2016/0174200 A1, published Jun. 16, 2016, filed Dec. 10, 2015 (Ex. 1007). Seok claims priority to two U.S. provisional applications filed on December 12, 2014, and December 17, 2014 (*id.* at code (60), ¶ 1).

<sup>9</sup> US 2016/0330058 A1, published Nov. 10, 2016, filed Sep. 25, 2015 (Ex. 1008). Chen claims priority to two U.S. provisional applications both of which were filed on May 5, 2015 (*id.* at code (60), ¶ 1).

<sup>10</sup> US 2017/0070998 A1, published Mar. 9, 2017, filed Sep. 7, 2016 (Ex. 1009). Wu claims priority to a U.S. provisional application filed on September 7, 2015 (*id.* at code (60), ¶ 1).

Petitioner supports its showing of unpatentability of the challenged claims of the '595 patent with the Declaration of R. Michael Buehrer, Ph.D. (Ex. 1003). Patent Owner has not filed a declaration of a technical expert in support of its Preliminary Response.

Petitioner contends that the cited art qualifies as prior art under applicable law. *See* Pet. 2. Patent Owner does not dispute the prior art status of the cited art at this stage. *See* Prelim. Resp. We preliminarily determine that the cited art qualifies as prior art.

## II. OBVIOUSNESS ANALYSIS

### A. Principles of Law

Under 35 U.S.C. § 103, a patent claim is unpatentable “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (similar language). The question of obviousness involves resolving 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 ordinary skill in the art; and when presented (4) objective evidence of non-obviousness (not presented here). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Further, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *See KSR*, 550 U.S. at 418.

*B. Level of Ordinary Skill in the Art*

Petitioner contends that

[A] person of ordinary skill in the art (“POSITA”) would have had a Bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and at least 3 years of experience in the research, design or development of wireless communication devices, systems, and/or networks, or the equivalent.

Pet. 3 (citing Ex. 1003 ¶ 26). Petitioner further contends that “[i]ncreased educational experience can make up for less work experience, and vice versa.” *Id.* Patent Owner objects to Petitioner’s proposed level of ordinary skill in the art only “[t]o the extent that Petitioner requires [] the required experience and/or education level to be acquired by December 24, 2015.” Prelim. Resp. 8.

Determining the level of ordinary skill in the art involves various factors, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The prior art of record also reflects the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). For purposes of this institution decision, with the exception of the open-ended language “at least,” we adopt the assessment offered by Petitioner.<sup>11</sup>

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<sup>11</sup> No matter how designated in this decision, any determination (except our determination to institute trial) is preliminary and non-binding. We wish to have the full record as developed during trial before rendering any binding determination, finding, or conclusion.

It is not materially disputed by the Patent Owner and is consistent with the '595 patent and the asserted prior art.

C. *Claim Construction*

In *inter partes* reviews, the Board construes claims using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2023). The “words of a claim ‘are generally given their ordinary and customary meaning,’” as would have been understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–1317).

Petitioner asserts that “[n]o formal claim constructions are necessary.” Pet. 3. “Patent Owner applies the plain and ordinary meaning of the challenged claims.” Prelim. Resp. 10.

At this stage, no need exists to expressly construe any claim terms to resolve any dispute between the parties.<sup>12</sup> See *Nidec Motor Corp. v.*

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<sup>12</sup> If either party contends that explicit claim construction is necessary in order to make a final determination whether or not any challenged claim is unpatentable based on the arguments and evidence presented, it should clearly explain why during trial and provide a clear and unambiguous construction with supporting evidence including specifically identifying the challenges, claims, and limitations to which the construction is necessary.

*Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

*D. Asserted Obviousness of Claims 1–12 Based on Josiam*

Petitioner challenges claims 1–12 as being obvious over Josiam. See Pet. 1, 8–39 (Ground 1A). Patent Owner argues that Josiam fails to disclose limitations 7.5 and 7.7 of the challenged claims and relies on these arguments for all the challenged claims. Prelim. Resp. 10–14. We start our analysis with a description of the disclosure of Josiam, and then consider the arguments and evidence presented by the parties related to this ground.

*1. Josiam (Ex. 1005)*

Josiam is titled “Efficient Signaling and Addressing in Wireless Local Area Network Systems.” Ex. 1005, code (54). Josiam relates to “scheduling and indicating scheduling information in a wireless local area network (WLAN),” where an access point controller “include[s] common information for a plurality [of] STAs that are scheduled in the WLAN in a common field in a header of a protocol data unit, and [] include[s] user-specific information for the STAs in a user-specific field in the header that follows the common field.” *Id.* at code (57).

As background, Josiam notes that in IEEE 802.11ax specifications defining high efficiency transmissions, “[t]he data packet transmitted is called a HE physical layer convergence procedure (PLCP) protocol data unit (PPDU),” and it includes a header with “information necessary to decode the PPDU.” Ex. 1005 ¶ 3. But, because “the same header has to indicate different types of payload to the receiver’s physical layer, HE-signaling-A

(HE-SIG-A) field in the header ha[s] multiple interpretations depending on certain flags that are transmitted along with the signaling fields.” *Id.* In addition, multi-user packets have an HE-SIG-B field that communicates decoding information for the data addressed to the STAs.” *Id.*

Figure 5, reproduced below, illustrates “an example structure 500 of a header for a HE PPDU transmission.” Ex. 1005 ¶ 93.

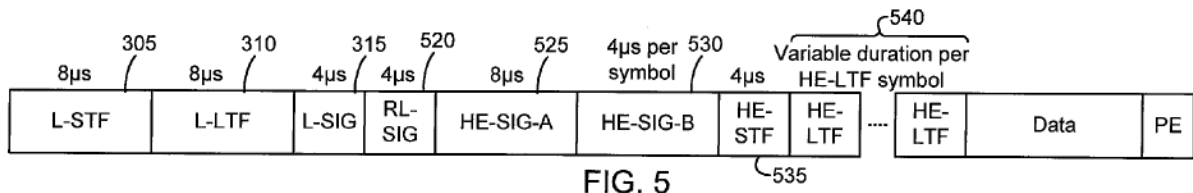


FIG. 5

As shown in Figure 5, header 500 includes HE-SIG-A field 525 and HE-SIG-B field 530. *Id.* ¶ 94. Josiam discloses that “user allocations for multi-user PPDUs are indicated in HE-SIG-B fields.” *Id.* ¶ 127. This allocation information “includes two parts—a common part indicating the allocation index and other common fields (e.g., common information portion 1010) . . . and a per 20 MHz signaling part (e.g., user specific portion 1015).” *Id.*; *see also* Fig. 10.

Josiam also discloses that “[s]cheduling information for users scheduled in the center 26 tone RU [(resource unit)] of an 80 MHz allocation or allocations greater than 20 MHz can be carried in one or more portions.” Ex. 1005 ¶ 126. For example, “the center 26 tone scheduling information can be carried as the last allocation information in the 20 MHz whose subcarrier index precedes the first subcarrier index of the center 26 tone RU,” or “carried as the first allocation information in the 20 MHz segment whose subcarrier index is greater than the first subcarrier index of the center 26 tone RU.” *Id.* Josiam describes that “[t]he RU index is a

numerical index of the RU depending on its size,” and that “[t]he size of the RU position index carried in the block of user allocation information varies according to the bandwidth information signaled in the HE-SIG-A.” *Id.* ¶¶ 131–132.

## 2. Claim 7

Our limitation-by-limitation analysis of claim 7 is provided below.

*[7.pre] A wireless communication method of a wireless communication terminal, the method comprising:*<sup>13</sup>

Petitioner relies on Josiam “disclos[ing] ‘methods for efficient signaling and addressing in WLAN [wireless local area network] systems.’” Pet. 11 (citing Ex. 1003 ¶ 112; Ex. 1005 ¶ 4).<sup>14</sup> The Petition states that “Josiam’s methods describe at least one station (i.e., a wireless communication terminal).” *Id.*

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<sup>13</sup> Petitioner does not address whether the preamble of claim 7 is limiting. *See* Pet. 1. We determine that the preamble of claim 7 is not limiting because it does not recite essential steps or structure and is not necessary to give life, meaning, and vitality to the claim. *See Shoes by Firebug LLC v. Stride Rite Children’s Group, LLC*, 962 F.3d 1362, 1367 (Fed. Cir. 2020).

<sup>14</sup> Petitioner provides parallel citations to Exhibit 1006, the earliest provisional application to which Josiam claims priority (*see* Ex. 1005, code (60), in order to show that “the relevant subject matter relied upon herein is fully supported by respective provisional applications filed before the [filing date (December 24, 2015) of the earliest foreign application to which the ’595 patent claims priority (*see* Ex. 1001, code (30)].” Pet. 2. At least at this stage, there is no dispute between the parties as to whether Josiam or the ’595 patent are entitled to the claimed priority. *See* Prelim. Resp. 1 fn.1, 12 fn. 2. Therefore, unless deemed necessary to Petitioner’s showing, we do not include references to the Petition’s citations to Exhibit 1006 or discussion of Exhibit 1006 in our analysis. However, if Petitioner cites to Exhibit 1006 in a passage that we quote, we maintain these citations so that our quotation is accurate and complete.

Patent Owner acknowledges:

Josiam is directed to “scheduling and indicating scheduling information in a wireless local area network (WLAN).” Josiam at Abstract. Josiam describes “a station (STA) includes a transceiver configured to receive a header for a protocol data unit and a controller configured to identify common information for a plurality of STAs that are scheduled in the WLAN from a common field in the header and to identify user-specific information for the STA from a user-specific field in the header that follows the common field.” Josiam at Abstract.

Prelim. Resp. 12 (citing Ex. 1005, code (57)).

We determine that the preamble of claim 7 is disclosed in Josiam.

*[7.1] receiving a wireless packet including an [sic] high efficiency (HE)-signal (SIG)-A and HE-SIG-B;*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 11–12 (citing Ex. 1003 ¶ 113; Ex. 1005 ¶¶ 74, 93, 94, 102, Fig. 5). Petitioner contends “Josiam renders obvious receiving an HE PPDU (*wireless packet*) including HE-SIG-A and HE-SIG-B fields.” *Id.* at 11. Figure 5 of Josiam is reproduced below.

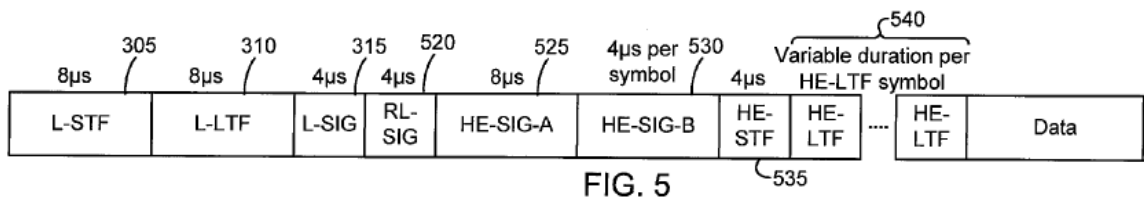


Figure 5 depicts “an example structure of a header for a HE PPDU transmission” (Ex. 1005 ¶ 19) that includes HE-SIG-A and HE-SIG-B fields.

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*[7.2] obtaining bandwidth information indicated via a bandwidth field included in the HE-SIG-A;*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 12–13 (citing Ex. 1003 ¶¶ 114–116; Ex. 1005 ¶¶ 94, 105, 123, 132, Fig. 5). Petitioner contends “Josiam renders obvious obtaining bandwidth information indicated via a bandwidth field included in the HE-SIG-A.” *Id.* at 12. Josiam states that “[t]he size of the RU position index carried in the block of user allocation information varies according to the **bandwidth information signaled in the HE-SIG-A.**” Ex. 1005 ¶ 132 (emphasis added). In addition to relying on this teaching in Josiam, Petitioner also relies on a skilled artisan’s knowledge gained from a previously published standard (referencing 802.11ac (Wi-Fi 5)) and the general knowledge of a skilled artisan. *See* Pet. 12–13.

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*[7.3] obtaining information of an unassigned resource unit via at least one subfield included in the HE-SIG-B,*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 13–18 (citing Ex. 1003 ¶¶ 117–121; Ex. 1005 ¶¶ 104–106, 111, 154, 156–159, 165–171, 187–190, Table 3, Figs. 16, 27, 29, 37).

Petitioner contends:

Josiam renders obvious obtaining resource unit allocation information via at least a common field (***at least one subfield***) included in HE-SIG-B. SAMSUNG-1005, [0104], [0111], [0154], [0159], [0167]-[0171]; SAMSUNG-1006, 8, 11, 21-20, 24; SAMSUNG-1003, [117]-[121]. This resource unit allocation information may ***include information of an***

*unassigned resource unit. Id.* The unassigned resource unit may fall within a 242-tone segment corresponding to a 20MHz channel or may be one or more 26-tone resource units (“C26 resource units”) that do not fall within any 242-tone segment corresponding to a 20MHz channel. *Id.* A POSITA **would have understood the common field as a subfield of HE-SIG-B.** *Id.*; SAMSUNG-1005, [0105]-[0106], [0156]-[0157]; SAMSUNG-1006, 11, 23; SAMSUNG-1011, 8-9.

*Id.* at 13–14. Petitioner provides examples from Josiam of teachings of the elements of this limitation and well-supported and persuasive reasoning that supports its contention that Josiam teaches or suggests this limitation. *Id.* at 14–18.

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*[7.4] wherein the bandwidth field is related to bandwidth over which the received wireless packet is transmitted, and*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 18–19 (citing Ex. 1003 ¶ 122; Ex. 1005 ¶¶ 94, 105, 123, 132). Petitioner contends that “[a]s discussed above for [7.2], a POSITA would have understood Josiam as teaching a **bandwidth field that indicates the bandwidth of the PPDU**” and “[a] POSITA would have understood the bandwidth of the PPDU (**a wireless packet**) as related to the bandwidth over which the wireless packet is transmitted.” *Id.*

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*[7.5] wherein the bandwidth field of HE-SIG-A is used to obtain the information of the unassigned resource unit; and*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 19–22 (citing Ex. 1003 ¶¶ 123–127; Ex. 1005 ¶¶ 130–140, 150–192, Table 3, Figs. 11, 14–17, 23, 29). Petitioner contends:

Josiam renders obvious wherein the bandwidth field of HE-SIG-A is used to obtain the information of the unassigned resource unit (e.g., an unused resource unit within a 242-tone segment or an unused C26 resource unit). SAMSUNG-1003, [123]-[127]. As discussed for [7.2], the bandwidth field of HE-SIG-A indicates the bandwidth of the PPDU. *See* [7.2]. The number of HE-SIG-B content channels and the length of the common field in each content channel varies based on the bandwidth. SAMSUNG-1005, [0156]-[0192]; SAMSUNG-1006, 22-30; *see* [7.2]; SAMSUNG-1003, [123].

*Id.* Petitioner provides two examples of how Josiam teaches using the bandwidth field of HE-SIG-A to obtain the information of the unassigned resource unit, as follows.

As one example, information of an unassigned resource unit in an 80MHz PPDU may be obtained via and indicated by the bandwidth field of HE-SIG-A and the RU allocation index of HE-SIG-B. SAMSUNG-1005, [0130]-[0138], [0164]-[0175], Figs. 11, 14-16, 29; SAMSUNG-1006, 11-12, 15-17, 24-29; SAMSUNG-1003, [124]. The bandwidth field first indicates the total bandwidth of the PPDU, thus indicating, among other things, the total number of possible tones (here, 996 tones for 80MHz) and HE-SIG-B signaling structure (here, two HE-SIG-B content channels containing resource unit allocation information for two segments of 242-tones corresponding to alternating 20MHz channels). *Id.* The RU allocation index for one or more of the four 242-tone segments may include a value (e.g., 240) indicating that a 26-tone resource unit within the 242-tones corresponding to a particular 20MHz segment is not assigned to a user. SAMSUNG-1005, [0135]-[0140], [0150]-

[0155], Table 3, Figs. 17, 23, 29; SAMSUNG-1003, [124]. By these two fields, a station may determine that a particular resource unit within the overall 80MHz bandwidth (i.e., 996-tones) is unassigned. SAMSUNG-1005, [0135]-[0138] (“Given the fixed location of the RUs in the OFDMA tone plan, the enumeration of possible RU arrangements over a specific bandwidth is specified and signaled.”), Fig. 17; SAMSUNG-1006, 16-17; SAMSUNG-1003, [124].

....

As another example, Josiam teaches that the number of indication bits in the common part of HE-SIG-B—which indicate information as to whether one or more C26 resource units is unassigned—is determined based on the bandwidth as indicated by the bandwidth field of HE-SIG-A. SAMSUNG-1003, [125]-[126]. For example, Josiam teaches that, in an 80MHz PPDU, “[t]he common portion 2905 of one of the HE-SIG-B channels also includes 1 bit indicating whether the central 26 tone RU is assigned to a[] user or not.” SAMSUNG-1005, [0165]-[0169]; SAMSUNG-1006, 24. . . .

Because the bandwidth as indicated by the bandwidth field of HE-SIG-A triggers the number of indication bits for one or more C26 resource units in the common part of HE-SIG-B, a POSITA would have understood Josiam’s bandwidth field as being used to obtain the information of the allocation of the C26 RU—i.e., information of an unassigned resource unit. SAMSUNG-1003, [126]; *see* [7.8].

*Id.* at 19–21 (alterations in original).

Patent Owner disputes the showing for this limitation. *See* Prelim. Resp. 12–14. According to Patent Owner, “Petitioner’s arguments failed because Josiam uses the common fields in HE-SIG-B to indicate information of the alleged unassigned resource unit. *See, e.g.*, Petition at 19-22. It does not teach using the bandwidth field of HE-SIG-A to obtain the information of the unassigned resource unit.” *Id.* at 13. As discussed above with regard to limitation 7.2, Patent Owner does not dispute that Josiam teaches

obtaining bandwidth information indicated via a bandwidth field included in the HE-SIG-A. And, as discussed above with regard to limitation 7.3, Patent Owner does not dispute that Josiam teaches obtaining information of an unassigned resource unit via at least one subfield included in the HE-SIG-B. There does not appear to be any dispute that, as contended by Petitioner, HE-SIG-A is used to indicate the total number of tones and the number of HE-SIG-B content channels and the length of the common field in each content channel varies based on the bandwidth as indicated via a bandwidth field included in the HE-SIG-A. As stated by Petitioner, using the information obtained from these two fields, a station may determine that a particular resource unit within the overall bandwidth is unassigned. Patent Owner does not sufficiently rebut Petitioner's showing with its argument that Josiam uses the common fields in HE-SIG-B to indicate information of the alleged unassigned resource unit. *See* Prelim. Resp. 12–14. We also note that, at least at this stage, Petitioner's argument is supported by the testimony of Dr. Buehrer (*see* Ex. 1003 ¶¶ 123–127) and Patent Owner does not offer any testimony to counter this testimony (*see* Prelim. Resp. 12–14).

We determine that Josiam teaches or suggests this limitation.

*[7.6] decoding a data of the received wireless packet based on the total bandwidth information and the information of the unassigned resource unit,*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 22–24 (citing Ex. 1003 ¶¶ 128–130; Ex. 1005 ¶¶ 3, 95–101, 104, 115, 136–138, 154, 156–192, Fig. 26). Petitioner contends that:

Josiam explains that “[t]he header to both SU and MU PPDU includes information necessary *to decode the PPDU.*” SAMSUNG-1005, [0003]; SAMSUNG-1006, 1. As explained above for [7.2], a bandwidth field in Josiam's HE-SIG-A is

used to determine the PPDU bandwidth. *See* [7.2]. A POSITA would have understood that a receiving station uses the PPDU bandwidth information to determine how many 20MHz channels are used, possible resource unit arrangements (i.e., tone plans), number of HE-SIG-B channels, and number of C26 resource units. SAMSUNG-1005, [0095]-[0101], [0104], [0136]-[0138], [0156]-[0192]; SAMSUNG-1006, 7-12, 15-17, 23-30; SAMSUNG-1017, 9; SAMSUNG-1011, 7-11, 17-20, 23-25; SAMSUNG-1003, [128]. Thus, a POSITA would have understood that the ***data of the received wireless packet is decoded based on the bandwidth of the PPDU*** as indicated by the bandwidth field of HE-SIG-A. SAMSUNG-1003, [128].

A POSITA would have also understood that the information of the unassigned resource unit is used to decode data of the received wireless packet. SAMSUNG-1003, [129]-[130]. Josiam teaches that “[t]he STAs decode each HE SIG-B in each 20MHz segment to identify which section carries information for them.” SAMSUNG-1005, [0115]; SAMSUNG-1006, 11. For example, Josiam explains that a station “uses the common information portion 2605 and the position of the STA’s per-user allocation to unambiguously identify the RU including the STA’s data.” SAMSUNG-1005, [0157], Fig. 26; SAMSUNG-1006, 22-23. As Dr. Buehrer explains, information of an unassigned resource unit (e.g., an unused resource unit within a 242-tone segment or an unused C26 resource unit) is used to determine that (a) the unassigned resource unit does not need to be decoded as part of the decoding processing and (b) the position of a station’s per-user allocation. For example, if the indication bit is 0, a station will know not to expect a user field for the C26 resource unit. SAMSUNG-1003, [129]; SAMSUNG-1005, [0154] (“No per-STA information fields are sent for resources indicated to be unused in the resource allocation index.”). . .

. . . .

A receiving station uses the number of resource units to determine the length (specifically the number of user fields) of the user-specific field of HE-SIG-B, and thus properly decode HE-SIG-B to obtain the station’s assigned resource unit and decode data therein. *Id.*; SAMSUNG-1005, [0142], [0149],

[0170]; SAMSUNG-1006, 18-19, 24; SAMSUNG-1008, [0089]-[0093]. From this disclosure, a POSITA would have further understood that Josiam renders obvious that the information of an unassigned resource unit is used to decode data of the received PPDU. SAMSUNG-1003, [130].

*Id.* (alterations in original).

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*[7.7] wherein the unassigned resource unit is explicitly indicated with the information of the unassigned resource unit based on the bandwidth field and the at least one subfield, and*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 24–27 (citing Ex. 1003 ¶¶ 131–137; Ex. 1005 ¶¶ 110, 118, 126, 154, 169, 173, 190, 193–198, Figs. 10, 11). *Id.* The Petition states that “[a] POSITA would have understood Josiam’s methods as rendering obvious that an unassigned resource unit is *explicitly indicated* with the information of the unassigned resource unit based on the bandwidth of the PPDU (as indicated by the *bandwidth field of HE-SIG-A*) and the common field (*at least one subfield*) of HE-SIG-B.” *Id.* at 25 (citing Ex. 1003 ¶ 133). Again, as with limitation 7.5, Petitioner provides two examples, as follows:

For example, a POSITA would have understood Josiam as rendering obvious that an unassigned resource unit is explicitly identified with the information of the unassigned resource unit when the resource unit allocation index (carried in the common field of HE-SIG-B) is set to a value that indicates an unassigned resource unit in a 242-tone portion of a PPDU. SAMSUNG-1003, [134]; SAMSUNG-1005, [0154] (“[T]he RU allocation index *can communicate indices that indicate unused resources* and used resources.”), [0169] (“The common information portion 2905 of one of the HE-SIG-B channels also

*includes 1 bit indicating whether* the central 26 tone RU is assigned to a[] user or not.”); SAMSUNG-1006, 11, 21-22; *see* [7.3], [7.5]. As explained above for [7.5], the location of the unassigned resource unit within the overall PPDU is determined based on the bandwidth indicated by the bandwidth field of HE-SIG-A. *See* [7.5].

As another example, a POSITA would have understood Josiam as rendering obvious that an unassigned resource unit (e.g., a C26 resource unit) is explicitly identified with the information of the unassigned resource unit based on Josiam’s bandwidth field indicating a PPDU of 80MHz or greater and one or more of Josiam’s indication bits (carried in the common field of HE-SIG-B) indicating that one or more corresponding C26 resource units is not assigned to a user. SAMSUNG-1003, [135]; SAMSUNG-1005, [0110], [0118], [0126], [0169], [0173], [0190], Figs. 10-11; SAMSUNG-1006, 9-11, 24-25, 29-30, Figs. 10-11. As discussed above for [7.5], Josiam teaches that the number of C26 resource units varies based on the PPDU bandwidth: zero C26 resource units for 20 and 40MHz PPDUs, one C26 resource unit for 80MHz PPDUs, and two C26 resource units for 160 (or 80+80MHz) PPDUs; *Id.*; *see* [7.5], [7.8]. Thus, a POSITA would have further understood that an unassigned resource unit (e.g., a C26 resource unit) is explicitly indicated based on the bandwidth of the PPDU (indicated by the bandwidth field of HE-SIG-A) and the one or more C26 indication bits in the common field (“at least one subfield”) of HE-SIG-B. SAMSUNG-1003, [136].

As a result, a POSITA would have understood that Josiam renders obvious that an unassigned resource unit is explicitly indicated with the information of the unassigned resource unit based on the bandwidth field of HE-SIG-A and the common field of HE-SIG-B. SAMSUNG-1003, [137].

*Id.* at 25–27 (alteration in original).

Patent Owner disputes the showing for this limitation (*see* Prelim. Resp. 10–14), but specifically discusses only the showing in the Petition for limitation 7.5 (*id.* at 12–14 (discussing Pet. 19–22 related to limitation 7.5)).

Thus, for this limitation, we understand Patent Owner to advance the same argument discussed above with relation to limitation 7.5. *See id.* at 13 (“Petitioner’s arguments failed because Josiam uses the common fields in HE-SIG-B to indicate information of the alleged unassigned resource unit. *See, e.g.,* Petition at 19-22. It does not teach using the bandwidth field of HE-SIG-A to obtain the information of the unassigned resource unit.”). We do not agree with Patent Owner’s argument for the reasons discussed above in our analysis of limitation 7.5.

We determine that Josiam teaches or suggests this limitation.

*[7.8] wherein the information of the unassigned resource unit includes information of a C26 field indicating whether a user is allocated to a center 26-tone resource unit of 80 MHz upon the bandwidth related to a transmission of the received wireless packet indicated by the bandwidth field being 80 MHz or more, not 20 MHz or 40 MHz.*

Petitioner provides a showing that Josiam teaches or suggests this limitation. Pet. 27–29 (citing Ex. 1003 ¶¶ 138–144; Ex. 1005 ¶¶ 110, 118, 126, 130–134, 156–192, Figs. 10, 11, 14–16). Petitioner contends that “Josiam renders obvious that the resource unit allocation information includes information of a C26 field indicating whether a user is allocated to a C26 resource unit of 80MHz by way of indication bits included in the common field of HE-SIG-B.” *Id.* at 27.

Josiam provides that “the resource allocation for the 26 tone RU split around the DC tones of an 80 MHz MU PPDU may be indicated by an extra bit in either of the 20 MHz segments or duplicated in both 20 MHz segments surrounding the DC tones. The presence of the extra bit is triggered by the bandwidth signaling when set to 80 MHz.” Ex. 1005 ¶ 118. Josiam further provides that, in an 80 MHz PPDU, “[t]he common information portion

2905 of one of the HE-SIG-B channels also includes 1 bit indicating whether the central 26 tone RU is assigned to an [sic] user or not.” *Id.* at ¶ 169.

With regard to the last “not 20 MHz or 40 MHz” recitation of this limitation, the Petition provides:

***No indication bit for a C26 resource unit is included in 20 or 40MHz PPDUs.*** SAMSUNG-1003, [140]. *Compare* SAMSUNG-1005, [0156]-[0163]; SAMSUNG-1006, 22-24, *with* SAMSUNG-1005, [0164]-[0192]; SAMSUNG-1006, 24-30. Moreover, as Dr. Buehrer explains, the extra indication bit used for signaling the use of a C26 resource unit is not required for 20 or 40MHz PPDUs because the tone plans for those transmission bandwidths do not include a 26-tone resource unit that falls between channels. SAMSUNG-1003, [140]-[143]; SAMSUNG-1005, [0130]-[0134], Figs. 14-16; SAMSUNG-1006, 5-8.

Pet. 28–29.

Patent Owner does not dispute the showing for this limitation. *See* Prelim. Resp.

We determine that Josiam teaches or suggests this limitation.

*Summary as to Claim 7*

Petitioner has sufficiently shown that Josiam teaches or suggests all the limitations of independent claim 7. We determine that there is a reasonable likelihood that Petitioner will prevail with respect to the unpatentability of claim 7.<sup>15</sup>

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<sup>15</sup> Thus, we determine that there is a reasonable likelihood that the Petitioner will prevail with respect to at least one of the claims challenged in the Petition pursuant to 35 U.S.C. § 314 and that *inter partes* review should be instituted. Accordingly, we institute as to all the challenged claims and all the challenges raised in the Petition. 37 C.F.R. §42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to

3. *Claims 1–6 and 8–12*

Petitioner also asserts that claims 1–6 and 8–12 are obvious in view of Josiam. Pet. 1, 29–39. The Petition provides a sufficiently detailed and supported showing that the limitations recited in claims 1–6 and 8–12 are taught by Josiam. *Id.* at 29–39.

As indicated previously, both parties treat independent claim 7 as exemplary. *See* Pet. 4, 11–29; Prelim. Resp. 5–6, 10–14. With specific regard to this ground (Ground 1A), Patent Owner discusses, and disputes, only the showing in the Petition (Pet. 19–22) as to limitations 7.5 and 7.7. Prelim. Resp. 12–14. As discussed above in relation to claim 7, we do not agree with Patent Owner’s argument as to claim 7.

Based on the current record, we determine that there is a reasonable likelihood that Petitioner will prevail with respect to the unpatentability of claims 2–6 and 8–12.

*E. Asserted Obviousness of Claims 1–6 Based on Josiam and Seok*

Petitioner challenges claims 1–6 as being obvious in view of the combination of Josiam and Seok. *See* Pet. 1, 39–42 (Ground 1B). Petitioner relies on its showing with regard to Josiam and Gound 1A (obviousness based on Josiam) for this ground and cites Seok for teaching a processor as recited in independent claim 1. *See id.* at 41 (“The Josiam-Seok combination renders obvious a processor (e.g., a baseband processor per Seok) configured to perform the remaining limitations of claim 1 and claims 2-6, per Josiam’s teachings.”). Independent claim 1 is directed to “[a] wireless communication terminal . . . comprising a processor, wherein the

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proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

processor is configured to” perform the same steps as recited in method claim 7 that is directed to “[a] wireless communication method of a wireless communication terminal.” *Compare* Ex. 1001, 52:50–53:11 (claim 1) *with id.* at 53:53–54:18 (claim 7). Additionally, Petitioner articulates reasons for combining the relevant teachings of Josiam and Seok. Pet. 41–42.

Seok describes a station (STA) for receiving a PPDU that includes a baseband processor. Ex. 1007 ¶ 15; *see also id.* ¶ 47, Fig. 1. Patent Owner does not dispute that Seok teaches a processor as recited in claims 1–6 or the reasons articulated in the Petition for combining the teachings of Josiam and Seok. *See* Prelim. Resp. 14–15. Patent Owner relies on its arguments as to Ground 1A (obviousness based on Josiam) for this ground. *Id.* The Preliminary Response provides:

The Petition asserted the combination of Josiam and Seok for a subset of claims of the ’595 Patent, i.e., Claims 1-6. Petition at 40. Seok was asserted solely for purposes of the “processor” element. Petition at 39-42. Accordingly, the Petition failed to establish that it has a reasonable likelihood to succeed on the merits, as Seok does not cure the deficiencies of Josiam for the other elements of the independent Claim 1, as discussed above for Ground 1A.

*Id.* In reliance on our analysis with regard to Ground 1A, we reject Patent Owner’s contention that Petitioner has not shown a reasonable likelihood of succeeding on this ground.

Based on the current the record, we determine that there is a reasonable likelihood that Petitioner will prevail with respect to the unpatentability of claims 1–6 in view of the combination of Josiam and Seok.

*F. Asserted Obviousness of Claims 1–12 Based on Chen and Wu*

Petitioner challenges claims 1–12 as being obvious over Chen and Wu. *See* Pet. 1, 42–85 (Ground 2). For this ground (as for Grounds 1A and 1B), Patent Owner again disputes whether the cited art discloses limitations 7.5 and 7.7. Prelim. Resp. 10–11, 15–19. We start our analysis with a description of the disclosures of Chen and Wu, and then consider the arguments and evidence presented by the parties related to this ground.

*1. Chen (Ex. 1008)*

Chen is titled “Systems and Methods for Wi-Fi High Efficiency Preambles for Resource Unit Allocation.” Ex. 1008, code (54). Chen relates to “allocating resources of a wireless local area network (WLAN), such as a high efficiency wireless local area network (HEW)” operating according to standards such as IEEE 802.11ax. *Id.* ¶ 32. Chen describes that an HEW preamble for a PDDU may include an HE-SIG-A portion “that may provide information that enables the decoding of the HE-SIG-B section by the STAs that receive the PPDU.” *Id.* ¶ 35. In an embodiment, “the HE-SIG-B may include both a common part and a STA specific part,” where the “common part may include a RU pattern index, that references a particular RU pattern or mapping of RU within a channel.” *Id.* ¶ 37.

Figure 14 illustrate an exemplary HE-SIG-B portion of an HEW PPDU preamble, and is reproduced below.

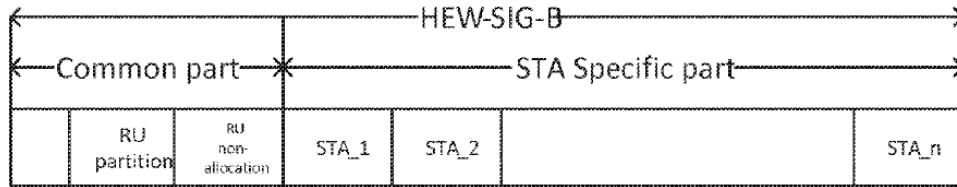


FIG. 14

As shown in Figure 14, HE-SIG-B 1400 may include a common part “indicating a sequence of RU allocation information with an unallocated RU.” Ex. 1008 ¶ 93. In other words, “[a]fter the RU allocation information (e.g., the allocation pattern in the common part of HE-SIG-B), there may be RU non-allocation information,” that “may indicate the non-allocated RUs” and “may be realized by a bit map.” *Id.*

### 2. *Wu (Ex. 1009)*

*Wu* is titled “HE SIG B Common Field Formats and Indication.” Ex. 1009, code (54). *Wu* also relates to IEEE 802.11ax networks, and in particular, to the use of “the HE-SIG-B field for efficient resource allocation.” *Id.* ¶¶ 3–4. In an embodiment, *Wu* describes that “a one-bit middle-tone indicator is included in the HE-SIG-B common field indicating whether the one or more middle 26 tone is used.” *Id.* ¶ 7; *see also id.* ¶¶ 43–44, 46.

### 3. *Analysis of Arguments and Evidence*

The Petition provides a sufficient showing that the limitations of the challenged claims of the ’595 patent are taught or suggested by a

combination of the disclosures of Chen and Wu and articulates reasons why a skilled artisan would be motivated to combine the relevant teachings of Chen and Wu. *See* Pet. 42–85. This challenge to the patentability of the claims of the '595 patent (Ground 2 of the Petition) is detailed and supported by the cited evidence. With regard to this ground and the asserted combination of art, Patent Owner argues that “[s]imilar to Grounds 1A and 1B, Chen and Wu do not show that ‘the bandwidth field of HE-SIG-A is used to obtain information of the unassigned resource unit’ as both the bandwidth field in HE-SIG-A and a subfield in HESIG-B need to be used for explicitly indicating the unassigned resource unit.” Prelim. Resp. 15. The quoted passage is limitation 7.5 and the “explicitly indicat[ing]” element is in limitation 7.7.<sup>16</sup> *See* Ex. 1001, 54:3–4, 54:9–12; *see also* Pet. vii (showing claim 7 with limitations numbered and labeled). Thus, Patent Owner disputes the same limitations with a similar argument as for the earlier grounds in disputing the showing in the Petition for this ground.

With regard to the disputed limitations, the Petition provides that, from a combination of the teachings and suggestions of Chen and Wu, a skilled artisan would understand that “the bandwidth field of HE-SIG-A indicates where in the overall bandwidth the non-allocated RU is located by defining the number of 20MHz channels and the arrangement and length of the HE-SIG-B content channels.” Pet. 60 (citing Ex. 1003 ¶ 178). The Declaration of Dr. Buehrer provides:

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<sup>16</sup> Limitation 7.7 recites: “the unassigned resource unit is explicitly indicated with the information of the unassigned resource unit based on the bandwidth field and the at least one subfield.” Ex. 1001, 54:9–12; Pet. vii (emphasis added).

178. Chen-Wu renders obvious using the bandwidth field of HE-SIG-A to obtain the information of the unassigned resource unit. As one example, a POSITA would have understood the Chen-Wu combination as rendering obvious that RU non-allocation information in HE-SIG-B indicates the location of a non-allocated RU within a 20MHz channel, while the bandwidth field of HE-SIG-A indicates where in the overall bandwidth the non-allocated RU is located by defining the number of 20MHz channels and the arrangement and length of the HE-SIG-B content channels. SAMSUNG-1008, [0101], [0098]; SAMSUNG-1009, [0036]; SAMSUNG-1010, 10.

179. Chen teaches that “RU allocation may be determined based at least in part on the PAID, channel bandwidth, and the HE-SIG-B.” SAMSUNG-1008, [0101], [0098]. I note that the Applicant did not dispute the Examiner’s finding that Chen teaches this limitation. *See* SAMSUNG-1002, 68, 102 (citing SAMSUNG-1008, [0093], [0098], [0103], Fig. 14).

180. Moreover, Wu teaches “a fixed format common field in the HE-SIGB is defined for each operation bandwidth. Therefore, the length and format of the common field are predefined [based on the bandwidth]. In this approach, there is no [additional] indication needed in the HE-SIG-A.” SAMSUNG-1009, [0036]; SAMSUNG-1010, 10. As I explained above for [7.2] and [7.4], a POSITA would have understood Chen’s HE-SIG-A as including a bandwidth field that indicates the operation bandwidth of the PPDU. *See* [7.2], [7.4].

181. For example, if the bandwidth field of HE-SIG-A indicates a PPDU bandwidth of 80 MHz, and the resource unit allocation field of the common field of HE-SIG-B indicates that the 20 MHz corresponding to the fourth channel is partitioned into 106, 26, and 106-tone resource units, the resource unit non-allocation information may indicate that the 26-tone resource unit is not assigned to any user through, e.g., a bitmap per Chen. SAMSUNG-1008, [0075], [0089]-[0093], Figs. 4, 12-14; SAMSUNG-1009, [0035]-[0043], Figs. 2-4; SAMSUNG-1010, 2-6, 10-14.

Ex. 1003 ¶¶ 178–181 (alterations in original) (footnote omitted). We determine that this testimony of Dr. Buehrer is supported and reasonable and sufficiently persuasive and credible to support institution. We also note that Patent Owner does not, at least at this stage, provide any contradictory expert testimony.<sup>17</sup>

We have considered Patent Owner’s arguments relating to the disputed limitations and this ground and found them not to be as well-supported as the Petitioner’s showing for essentially the same reasons as discussed above with regard to Ground 1A. Based on the current record, we determine that there is a reasonable likelihood that Petitioner will prevail with respect to the unpatentability of claims 1–12 of the ’595 patent based on a combination of the teachings and suggestions of Chen and Wu.

### III. CONCLUSION

For the foregoing reasons, we determine that trial should be instituted on claims 1–12 of the ’595 patent.

### IV. ORDER

Upon consideration of the record before us, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–12 of U.S. Patent No. 11,470,595 B2 is instituted with respect the grounds set forth in the Petition (*see* Pet. 1); and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 11,470,595 B2

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<sup>17</sup> Also, during prosecution of the application for the ’595 patent, the Examiner cited Chen for teaching that the bandwidth field of HE-SIG-A is used to obtain the information of the unassigned resource unit and for teaching that the unassigned resource unit is explicitly indicated by the bandwidth field. Ex. 1002, 68–69,

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shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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