

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

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

Case No. IPR2025-01110
U.S. Patent No. 11,716,171

PATENT OWNER'S PRELIMINARY RESPONSE

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TABLE OF AUTHORITIES

Cases

<i>Ariad Pharms., Inc. v. Eli Lilly & Co.</i> , 598 F.3d 1336 (Fed. Cir. 2010)	18
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PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Order, <i>Wilus Institute of Standards and Technology Inc., v. HP Inc.</i> , Case No. 2:25-cv-00069-JRG-RSP, Dkt. No. 51 (E.D. Tex., June 13, 2025) (“Docket Control Order”)
2002	Intentionally Omitted
2003	Excerpts of Defendants’ P.R. 3-3 and 3-4 Invalidity Contentions and Subject Matter Eligibility Contentions in the consolidated case, <i>Wilus Institute of Standards and Technology Inc., v. HP Inc.</i> , Case No. 2:25-cv-00069-JRG-RSP (E.D. Tex.), dated July 9, 2025.
2004	Docket Navigator Stay Statistics
2005	Excerpt from U.S. District Court – National Judicial Caseload Profile for the Eastern District of Texas, March 31, 2025, https://www.uscourts.gov/sites/default/files/document/fcms_na_distprofile0331.2025.pdf
2006	Judge Rodney Gilstrap’s median time to trial from August 25, 2024 until August 25, 2025, retrieved from www.docketnavigator.com
2007	D. Crouch, <i>Estoppel Gutted: A Pelican’s Guide to Patent Litigation</i> , Patently-O, https://patentlyo.com/patent/2025/05/estoppel-pelicans-litigation.html (May 7, 2025)
2008	Declaration of Jin Sam Kwak
2009	List of Licensees to Wifi 6 from Sisvel, https://www.sisvel.com/licensing-programmes/Wi-Fi/wifi-6/#tab-list-of-licensees
2010	Letter re “Notice of Wi-Fi 6 License offer” from Sisvel to Samsung Electronics Co., Ltd. with Attachments 1-2, April 8, 2022

I. Introduction

The Petition challenges all claims of the '171 Patent on two grounds: asserting obviousness based on Kim under the first ground, and obviousness based on a combination of Chu and Choi under the second ground. Both grounds are fundamentally flawed.

First, the Petition asserts under its first ground that all claims of the '171 Patent are obvious in view of Kim, alone. Kim, however, has an earliest effective date that comes after the earliest effective date of the '171 Patent's independent claims. Thus, Kim is not prior art to the '171 Patent's claims and cannot establish invalidity. Nor do the Petition's arguments about the '171 Patent's priority date hold any merit—it simply cherry-picked disclosure from one priority application while ignoring the numerous disclosures and figures disclosed across the substantial priority chain of the '171 Patent, which clearly show possession by the inventors of the challenged claims.

Second, the Petition argues that a POSITA would combine technologically disparate teachings from Chu and Choi to arrive at the challenged claims. In doing so, the Petition fails to acknowledge key differences between the disclosures from the references on which it relies. The Petition also asserts, in the context of the Choi reference, that POSITA would understand that one functionally distinct value (the association ID value, a

term of art in the field) is no different from another functionally distinct value, an “AID difference” such that a POSITA would intuitively merge them together—a proposition that is unsupported by both logic and evidence.

Thus, the Petition fails to establish a reasonable likelihood that Petitioner would succeed in showing that the prior art discloses or renders obvious any of the challenged claims. For at least this reason, the Board should deny institution.

II. Overview of the '171 Patent

The '171 Patent was filed on January 11, 2021, and issued on August 1, 2023. It is a continuation of U.S. Patent No. 10,911,186, filed on April 8, 2019, which is a continuation of U.S. Patent No. 10,305,638, the national stage of PCT Application No. PCT/KR2016/02199, filed on March 4, 2016. Ex. 1001 ('171 patent) at pgs. 1-2. The PCT Application further claims priority to multiple Korean applications filed in 2015. '171 Patent at 1:9-19. The '171 Patent lists Woojin Ahn, Yongho Kim, Jinsam Kwak, and Juhyung Son as inventors. Wilus Institute of Standards and Technology Inc. (“Wilus”) is the sole assignee of record.

The '171 Patent describes that there is a continued need “for providing a high-efficiency and high-performance wireless LAN communication technology in a high-density environment” and recognizes that “in a next-

generation wireless LAN environment, communication having high frequency efficiency needs to be provided indoors/outdoors under the presence of high-density stations and access points (APs).” ’171 Patent at 2:37-46. The techniques provided in the ’171 Patent can advantageously improve the efficiency and reliability of the wireless LAN system while reducing unnecessary channel occupancy and increasing spectral efficiency. ’171 Patent, 3:61-4:11. The ’171 Patent is utilized by products that implement the Wi-Fi 6 (802.11ax) standard for wireless communications and is widely licensed by the industry.

Representative Claim 1 of the ’171 Patent recites the following:

[1pre] A wireless communication terminal, the terminal comprising:

[1.1] a transceiver; and

[1.2] a processor,

[1.3] wherein the processor is configured to: receive a frame for allocating resource for uplink (UL) multi-user (MU) transmission to one or more terminals,

[1.4] wherein the frame includes an association identifier (AID) field and a frame check sequence (FCS) field,

[1.5] wherein the AID field is set to a value related to a first padding field, when the first padding field is included in the frame,

[1.6] wherein the first padding field is used to adjust a length of the frame, and

[1.7] wherein the first padding field is related to a preparation of a response frame for the frame, and

[1.8] transmit the response frame in response to the frame.

Independent method Claim 9 also recites similar elements as Claim 1.

III. Level of Ordinary Skill in the Art

The Petition proposes that a 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 equivalent, as of the Critical Date. ... Increased education experience can make up for less work experience and vice versa.” Petition at 2.

Patent Owner does not challenge Petitioner’s definition for purposes of this Preliminary Response, except as to which date corresponds to the “Critical Date.” As explained in more below, Patent Owner disputes Petitioner’s identification of what qualifies as the “Critical Date” of the ’171 Patent. Petitioner contends that the ’171 Patent is not entitled to several of the effective dates identified on the face of the ’171 Patent, which include March 4, 2016, corresponding to the filing date of PCT application number

PCT/KR2016/002166, and dates in March 4, 2015, March 17, 2015, and May 13, 2015, corresponding to Korean applications 10-2015-0030369, 10-2015-0036754, and 10-2015-0066670. Instead, Petitioner contends the '171 Patent is entitled to an effective date of no earlier than January 22, 2021. Petitioner is incorrect, as explained below.

IV. Claim Construction

“Petitioner submits that no formal claim constructions are necessary...” for purposes of the Petition. Pet. at 1-3. Patent Owner does not contend that any formal claim construction is necessary for purposes of this Preliminary Response.

V. The Petition Fails to Establish Obviousness of Any of the Challenged Claims

A. Ground 1: Kim Is Not Prior Art to the '171 Patent

The Petition argues, for Ground 1, U.S. Patent Application Publication 2019/0357256 (“Kim”) alone renders obvious all challenged claims of the '171 Patent. *See, e.g.*, Pet. at 12-25 (mapping Kim against '171 Patent, claim 1), 37 (incorporating analysis for independent claim 1 and dependent claims 2-8 against independent claim 9 and dependent claims 10-16). Kim is not prior art to the '171 Patent because its earliest effective date occurs after the priority date of the claims of the '171 Patent. As a result, Kim cannot establish obviousness of any of the challenged claims.

As an initial matter, neither the Petition nor the declaration of Petitioner's expert, Dr. Zhi Ding, articulate a position for what Kim's effective date would be for purposes of this proceeding. *See, e.g.*, Pet. at 12-36 (no argument concerning Kim's effective date); Ex. 1003, ¶¶ 73-114 (same). Based on the face of the reference, Kim has an earliest possible effective date of January 8, 2017 and/or January 12, 2017, which respectively correspond to the filing dates of provisional application number 62/443,808, 62/445,259, and 62/445,247. *See* Ex. 1015, at 1 (INID 60 information identifying priority applications). Thus, for purposes of establishing prior art status, the earliest possible effective date for Kim is January 8, 2017.

The Petition contends that the Critical Date for the '171 Patent is "no earlier than January 11, 2021—the filing date of the '171 Patent—because the priority applications ... fail to provide written description support for the claimed invention, as required by 35 U.S.C. §§ 112(a), 119(a), and 120." Pet. at 5 (emphasis in Petition). This arguments is incorrect. Under a reasonable reading of the applications to which the '171 Patent claims priority, a POSITA would understand that the inventors of the '171 Patent were in possession of the challenged claims and no later than March 4, 2016, the filing date of PCT application number PCT/KR2016/002166.

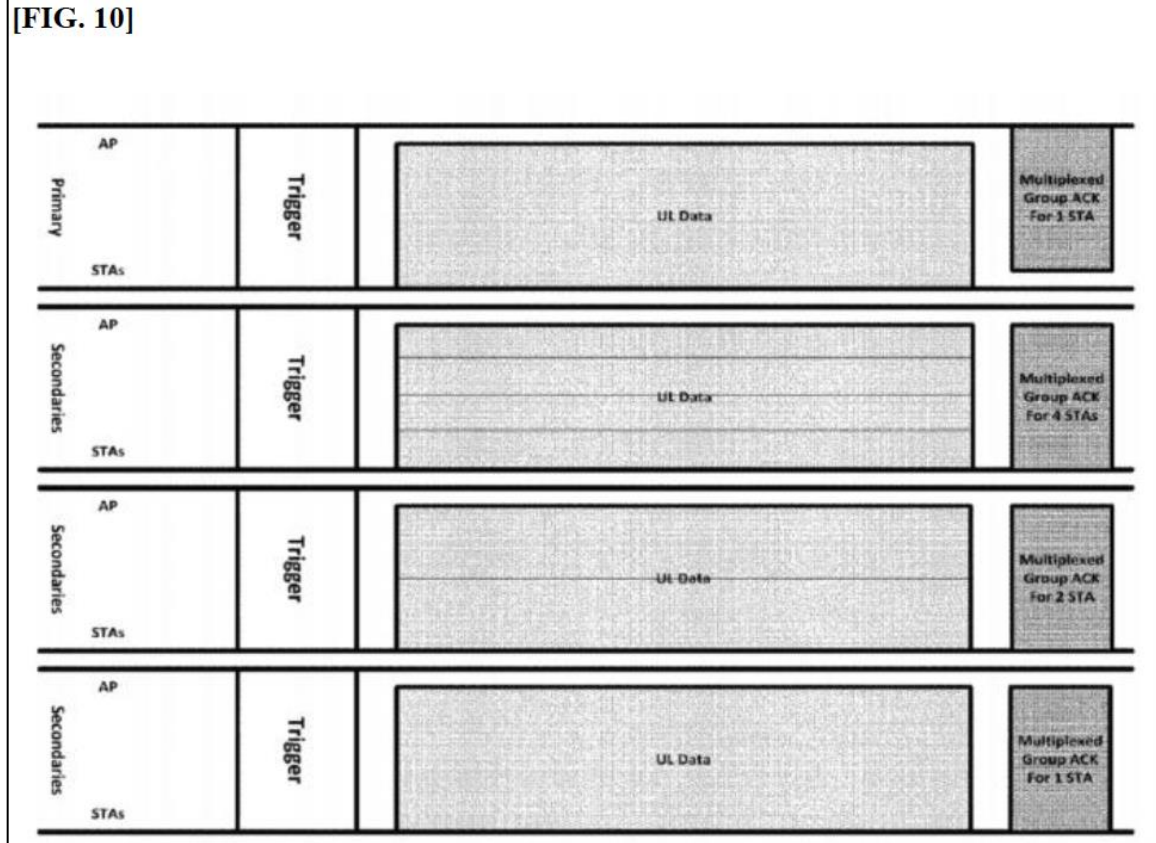
First, the Petition argues that “Korean Application Nos. 10-2015-0030369, 10-2015-0036754, or 10-2015-0066670, Application No. PCT/KR2016/002199, U.S. Application No. 15/555,075, or U.S. Application No. 16/377,829” (“the pre-Jan. 11, 2021 applications”) provide insufficient written description support for the challenged claims. Pet. at 7. Specifically, the Petition contends that none of the pre-Jan. 11, 2021 applications disclose a limitation from claims 1 and 9 of the ’171 Patent: “AID field is set to a value related to a first padding field, when the first padding field is included in the frame” (referred to herein as the “AID field” limitation). Pet at 7. According to the Petitioner, “[t]here is no disclosure establishing that the inventors were in possession of a frame structure in which the AID field is set to a value related to a first padding field, when the first padding field is included in the frame.” *Id.*

The only argument presented in the Petition and by Dr. Ding in support of Petition’s “AID field” argument is directed at Korean Application No. 10-2015-0036754 (“KR ’754”), which the Petition contends is “representative of the disclosure in the priority applications.” *See* Pet. 7-8. KR ’754 was filed on March 17, 2015, which predates the earliest effective date of Kim. In relevant part, the Petition contends that KR ’754’s Figure 9 embodiment and discussion thereof at [0063]-[0064] describes “using bits B0-B10 for AID

values and B11 as a flag to distinguish between a general ACK and a BA,” but that this allegedly only “pertains to uplink ACKS—not-trigger frames—and B11 does not identify or relate to padding.” *See id.* at 7-8. The Petition presents no other argument in support of its position that none of the pre-Jan. 11, 2021 applications provide written description support for the ’171 Patent’s limitation, “AID field” limitation. Thus if the “AID field” limitation is determined to be sufficiently described in KR ’754, Petitioner has no other argument for why the ’171 Patent is not entitled to a critical date predating Kim, and so Petition will have failed to establish obviousness of any challenged claim in view of Kim.

The Petition’s argument directed towards KR ’754 fails. It ignores the disclosure in KR ’754 showing possession by the inventors of an “AID field is set to a value related to a first padding field, when the first padding field is included in the frame.” The embodiments disclosure by KR ’754 through its Figures 10, 11, and 12, and corresponding discussion at [0065]-[0074]—which go unaddressed by the Petition—fully disclose claims 1 and 9 of the ’171 Patent, including the “AID field” limitation at issue here. *See Ex. 1008*, at [0065]-[0074], Figs. 10, 11, & 12.

Figure 10 of KR ’754 shows as follows:

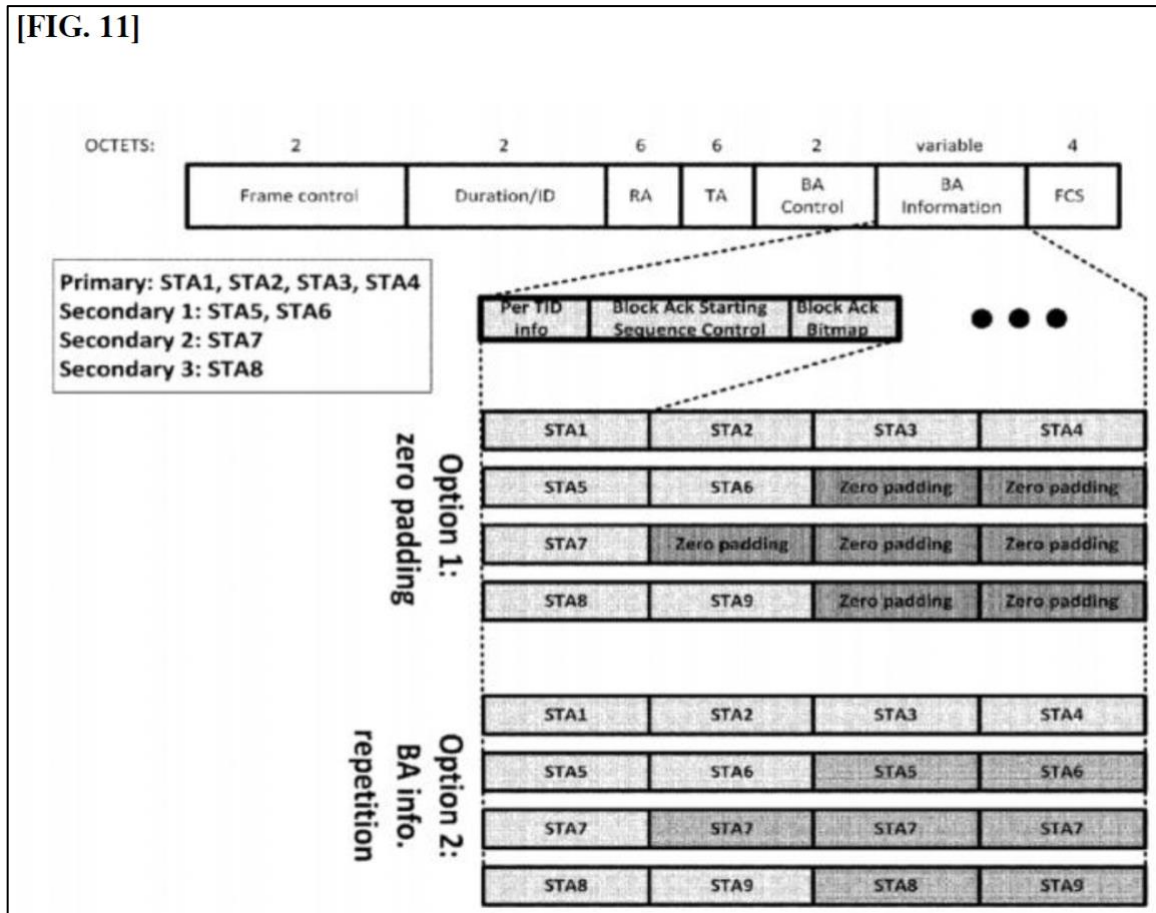


Ex. 1008, at 39. Figure 10 discloses schematic representation of a method of transmitting a multiplexed group ACK acknowledging a “multi-user uplink transmission” repeatedly described throughout KR ’754. KR ’754 teaches that the uplink transmissions are scheduled and occur predictably and periodically in a controlled manner enabled by “scheduling and data padding.” *See* Ex. 1008, at [0066]. Paragraph 66 of KR ’754 provides:

[0066] **In this embodiment, it is assumed that the UL data from multiple users transmitted after the trigger ends at the same time due to scheduling and data padding.** In this case, the AP may transmit ACKs not by multiplexing all ACKs on the primary channel, but by transmitting the ACKs for the transmitting terminals that sent UL data through each respective channel. Therefore, when the number of terminals assigned to

each channel differs, the number of AID values in the BA information field used for the multiplexed group ACK differs accordingly, and thus the length of the multiplexed group ACK transmitted over each 20 MHz channel can be set differently.

Ex. 1008, at [0066] (emphasis added). Next, Figure 11 of KR '754 provides as follows:



Ex. 1008, at 40. In relevant part, Figure 11 teaches a method of “AID field padding” (association identifier field padding) for BA (block ACK or block acknowledgment) length alignment. *Id.* KR '754 further discloses for Figure 11:

[0067] FIG. 11 illustrates an AID field padding method for BA length alignment according to another embodiment of the present invention.

[0068] The term “AID field padding method” used in the present invention refers to a technique in which, when the number of terminals requiring ACK in each channel differs, the Per TID info, block ACK sequence control, and block ACK bitmap, which are components of the BA information, are repeatedly inserted into the shorter ACKs until they match the length of the ACK for the channel with the longest ACK. If B11 indicates ACK, then the block ACK sequence control and block ACK bitmap are omitted, and only the Per TID info, i.e., the AID, is repeated.

[0070] When the number of UL data transmitting terminals allocated to each 20 MHz channel differs, the length of the BA information portion in the multiplexed group ACK transmitted on each channel may vary. Therefore, if the lengths of the multiplexed group ACKs need to be aligned due to constraints such as the L-SIG, the BA information length can be set based on the channel with the longest assigned BA information. In the remaining space, zero padding may be applied, or the BA information may be inserted repeatedly in the order in which it was originally inserted. Furthermore, when the PPDU enables the ACK option instead of the BA, the ACK option must be activated for all repeated BA information as well, allowing it to be transmitted with the BA starting sequence control and BA bitmap omitted.

Ex. 1008, at 26-27 (paragraph [0069] not in original). As KR '754 explains:

“the number of AID values in the BA information field used for the multiplexed group ACK” may differ, “and thus the length of the multiplexed group ACK transmitted over each 20 MHz channel can be set differently.” Ex. 1008, at [0066]. Since “in 802.11ax, it is specified that for a PPDU transmitted over a wideband of 20 MHz or more, the same L-SIG and HE-SIG A must be

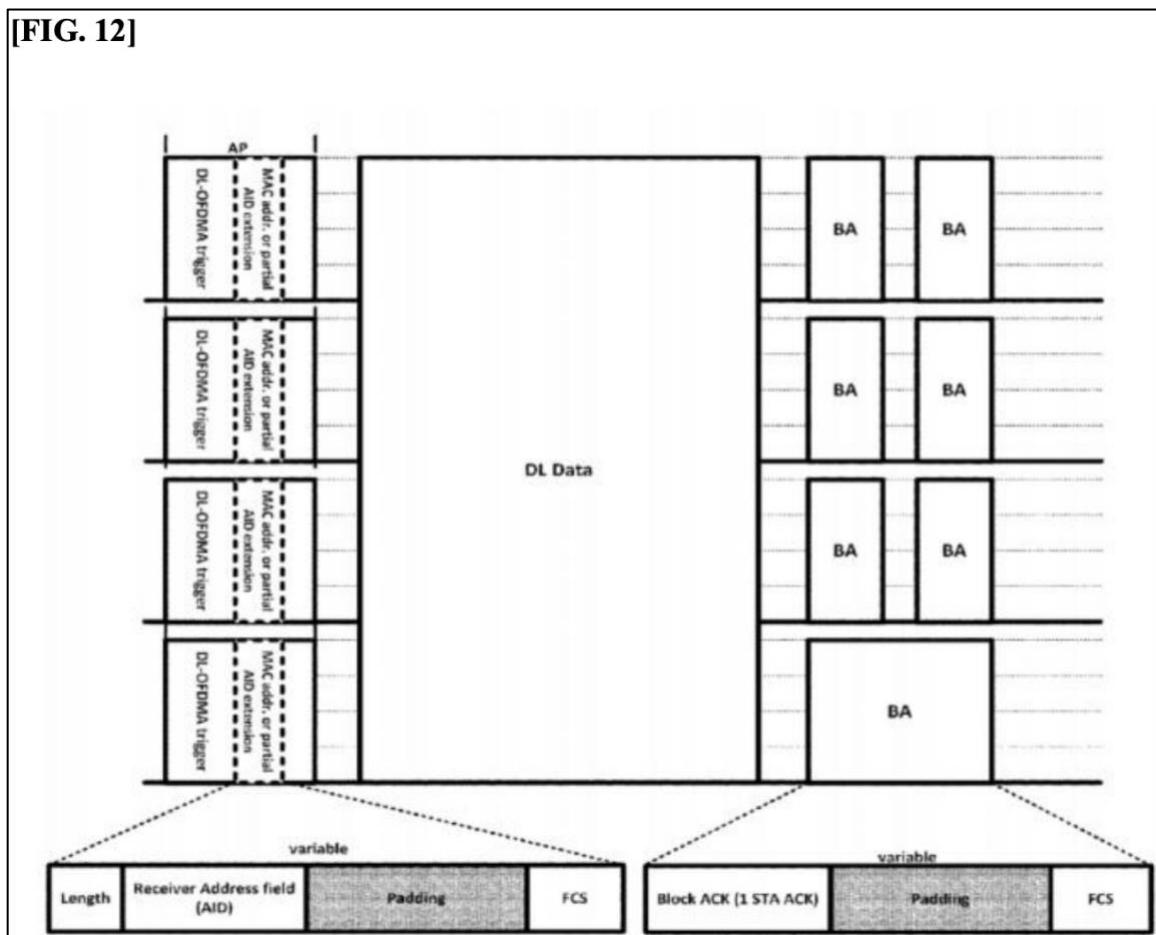
transmitted across all 20 MHz-wide channels used for the transmission,” where a multiplexed ACK contains multiple ACKs with different lengths (represented by shorter and longer BA information), “it becomes necessary to adjust the length of all ACKs to match the PPDU length value included in the L-SIG, so that all ACKs have the same length.” *See id.*

In simple terms, Figure 11 discloses adding padding into a multiplexed ACK to ensure the length of each of the multiplexed constituent ACKs are not misaligned due to constraints such as one imposed by a legacy signal field (L-SIG) on length. Padding (comprising components of BA information) is “repeatedly inserted into the shorter ACKs until they match the length of the ACK for the channel with the longest ACK.” Ex. 1008, at [0068].

In the multi-user uplink transmission of Figure 10, the “transmission of UL data of multiple users after a trigger is terminated at the same time due to scheduling and data padding.” Ex. 1008, at [0068]. The “data padding” referenced at [0066] refers to the “AID field padding method” described in detail in paragraphs [0067]-[0068]. In other words, the multiple uplink transmissions of uplink data depicted in KR '754, Figure 10, are described in [0066] as “terminat[ing] at the same time” in part as a function of the “data padding” techniques described immediately afterwards in [0067]-[0068]. Thus, KR '754's discussion about Figure 10 and Figure 11 would have been

understood as disclosing a padding method used to improve predictability and consistency of uplink transmissions for when uplink transmissions are scheduled by a trigger frame—this is the natural understanding a POSITA would immediately reach after reading paragraphs [0066] through [0068] and considering Figures 10 and 11.

Separately, Figure 12 of KR '754 also discloses a method in which the “AID field padding” is applied to a trigger frame. Figure 12 of KR '754 shows as follows:



Ex. 1008, at 41. KR '754 further discloses in connection with Figure 12:

[0071] FIG. 12 illustrates utilization of AID field padding and block ACK padding in multi-user downlink data transmission process according to another embodiment of the present invention.

[0072] The padding technique for length alignment of the BA's AID field proposed in the present invention can be similarly used in a DL-OFMDA trigger process in which an AP informs terminals to receive DL data on each channel in multi-user downlink transmission. In multi-user downlink data transmission, since a different number of terminals can be allocated to the receiving terminal for each channel, in order to match the different lengths in the process of announcing the AID of the terminal assigned to each channel by the AP during the DLOFDMA trigger process, FIG. 11 You can adjust the length of the trigger by inserting zero padding in the same form as or repeating AID.

[0073] ... In order to match the BA transmission time, the transmission time can be adjusted by inserting padding bits before FCS using the AID field padding technique proposed in the present invention.

[0074] The zero padding used in the present invention is an embodiment, and the same effect can be obtained even if 1 is padded.

Ex. 1008, at [0071]-[0074]. The trigger frame discussed herein is not limited to being used only for scheduling downlink transmissions, but may be used to schedule both uplink transmission and downlink transmission. That is, the padding discussed by KR '754 for its Figure 12 embodiment is not limited to downlink transmission but would have been understood by a POSITA as also being used to schedule uplink ones.

This is clear also from the other priority applications of the '171 Patent which were unaddressed in the Petition and by the Petitioner's expert. For example, PCT application, PCT/KR2016/02199 ("PCT '199"), filed on March 6, 2016, predates Kim and teaches the following:

[17] The transmission packet of the above multi-user uplink data includes legacy preambles and nonlegacy preambles, and the above legacy preambles are received as common information in 20 MHz channel units.

[18] The non-legacy preamble described above includes HE-SIG-A and the remaining fields, wherein HE-SIG-A is received as common information in units of 20 MHz channels, and the remaining fields of the non-legacy preamble are received as individual information for each resource assigned to each terminal.

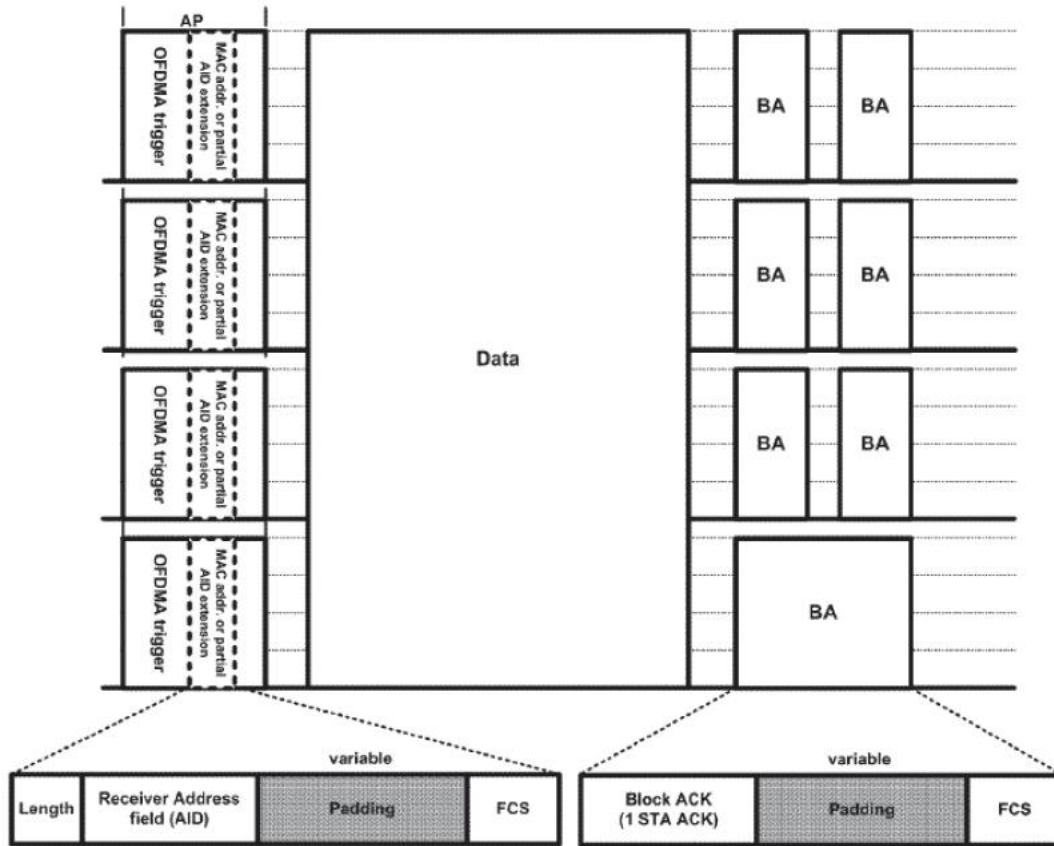
[19] The remaining fields of the above non-legacy preamble include HE-STF and HE-LTF.

[20] *The multi-user upstream data transfers from each of the resources terminate at the same time.*

[21] *Padding is performed on the above-mentioned uplink data transmitted through at least one resource, and the above-mentioned multi-user uplink data transmission is terminated at the same time.*

Ex. 1012, at [17]-[21]. In other words, PCT '199, like KR '754, teaches the use of padding uplink data in order to ensure multi-user upstream transmissions terminate at the same time, thus improving consistency and predictability in transmission timing from terminals to access points. Moreover, PCT '199 discloses Figure 20:

[FIG. 20]



Ex. 1012, at 38. Figure 20 depicts a frame alignment technique which adds padding to a trigger frame based on AID information. PCT '199 provides:

[134] *FIG. 20 illustrates a method of frame length alignment via padding in a multi-user simultaneous transmission process according to an embodiment of the present invention.*

[135] According to embodiments of the present invention, padding may also be performed on the trigger frame that triggers a multi-user simultaneous transmission. In a **multi-user upstream data transmission** and a multi-user downstream data transmission, a different number of STAs may be allocated for each channel. *The trigger frame may include AID information of the STAs assigned to each channel, wherein the amount of information in the trigger frame transmitted may vary for each channel.*

[136] According to one embodiment of the present invention, *a preset padding may be performed before the Frame Check Sequence (FCS) field of the trigger frame*. Thus, the transmission of the trigger frame may terminate at the same time on each channel over which the trigger frame is transmitted. Furthermore, by padding the trigger frame, the STAs may acquire *additional processing time to participate in multi-user simultaneous transmission in response to the trigger frame*. *According to another embodiment of the present invention, redundant AID information may be inserted prior to the FCS field of the trigger frame*.

[137] As mentioned above, if different numbers of STAs are allocated to each channel in the multiuser simultaneous transmission process, the amount of information in the block response transmitted in response to multi-user data may vary from channel to channel. According to an embodiment of the present invention, padding may be performed on the block response of another channel based on the length of the block response of the channel to which the largest number of STAs are assigned. In this case, the padding may be performed before the FCS field of the block response.

Ex. 1012, at [134]-[137]. A POSITA would plainly understand these disclosures to show that the inventors possessed “a frame structure in which the AID field is set to a value related to a first padding field, when the first padding field is included in the frame.” The “preset padding” disclosed in PCT '199 includes “redundant AID information may be inserted prior to the FCS field of the trigger frame”—this maps cleanly, and **directly**, onto the '171 Patent limitation at issue here for written description purposes: “wherein the AID field is set to a value related to a first padding field, when the first padding field is included in the frame.”

The Petition addresses none of these disclosures from the priority chain—including those from PCT '199 and KR '754—which is fatal to their argument that the '171 Patent is not entitled to a priority date earlier than January 2021. Neither does the Petition or the declaration of Dr. Ding (Ex. 1003) provide any argument or analysis touching on the requisite factors needed to be addressed for resolving a written description dispute. As the Federal Circuit articulated, “the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). Whether a given disclosure satisfies the written description requirement requires assessment of several factors, including (1) the existing knowledge in the field of art, (2) the extent and content of the prior art, (3) the maturity of the science or technology, and (4) the predictability of the aspect at issue.

Thus, not only did the Petition fail to address the actual, most pertinent disclosures for the claim limitation it contends is missing from the application priority chain, it failed to apply the evidence that it did discuss to the legal test for sufficiency; it did not, for example, establish whether KR '754 conveyed the '171 Patent's “AID limitation” at issue here in view of the existing

knowledge of POSITAs in the art or the maturity of the technology at issue. Having failed to present evidence on the relevant disclosures in the record or the requisite legal argument, the Petition failed to establish the '171 Patent was not entitled to any of the priority dates predating Kim's earliest possible effective date. As a result, because Kim is not prior art to independent claims 1 and 9 of the '171 Patent, the Petition fails to establish that that Kim renders obvious any of the challenged claims.

B. Ground 2: The Petition Fails To Establish that the Prior Art Discloses All Challenged Claims

For Ground 2, the Petition contends that a combination of U.S. Patent Application Publication 2015/0131517 ("Chu") and of U.S. Patent Application Publication 2015/0230244 ("Choi") renders obvious all challenged claims of the '171 Patent. *See* Pet. at 38-63 (mapping combination of Chu and Choi against claim 1), 80 (incorporating Chu and Choi arguments against claim 9). However, the Petition fails to establish that Chu in combination with Choi renders obvious several limitations of the challenged claims, including [1.5] "a value of the AID field indicates whether the first padding field is included in the frame" and [1.6] "the first padding field is used to adjust a length of the frame."

The Petition contends that the combination of Chu and Choi discloses [1.5], which requires "a value of the AID field indicates whether the first

padding field is included in the frame.” *See* Pet. at 52-55 (mapping Chu and Choi combination against [1.5]; *see also id.* at 80 (incorporating by referencing arguments for [1.5] against similar limitation [9.3])).

Limitation [1.5] requires a value of an AID field, and said value “indicates whether” a “padding field is included in the frame.” The Petition concedes that Chu does not disclose or render obvious this limitation. *See* Pet. at 53 (“However, while Chu discusses the use of padding, it does not teach which field within the frame is used to indicate the presence of that padding.”). The Petition instead relies on Choi, which it alleges “teaches a padding signaling mechanism that relies on a designated value within the AID field—specifically, a Δ AID field—to indicate the start of padding.” *Id.* This “ Δ AID field,” or “Association Identifier Differential Value” field, Petitioner argues, is “functionally and structurally derived from the AID space and is interpreted by the receiving device as part of the overall AID processing logic,” and therefore “still constitutes a part of the AID field for signaling purposes.” *Id.*

The Petition’s description of Choi’s Δ AID is necessary for its argument because, otherwise, Choi otherwise does not teach what limitation [1.5] requires: that there be an “AID” field (“association ID” field, a term of art in IEEE 802.11 wireless communications standards with a known definition),

and that this AID field have a “value” that “indicates whether the first padding field is included in the frame.”

The Petition's arguments about Choi are incorrect and unsupported by the evidence. As an initial matter, Choi does not disclose the use of an AID as a part of a frame for scheduling an uplink transmission (i.e., limitation [1.3]'s “uplink (UL) multi-user transmission to one or more terminals). Instead, the disclosure of Choi relied upon by the Petition is about AIDs (and other elements) transmitted via a control frame broadcast as a Traffic Indication Map (TIM) element. TIM elements are used by access points to inform terminals that data is available for the terminal to retrieve, after which the terminal may initiate communication with the access point to begin retrieval of data.¹

The Petition neither acknowledges nor explains why a POSITA, starting with the Chu's “uplink scheduling frame,” would look to Choi's TIM broadcast element for inspiration to improve Chu's teachings. This is a serious deficiency, because, in Choi, there is no need to adjust the length through padding in preparation for uplink transmission.

¹ See, e.g., https://en.wikipedia.org/wiki/Traffic_indication_map; Choi, at Figs. 11, 12, 13, [0037] (“IGS. 11, 12, and 13 illustrate an operation of a Station (STA) that has received a Traffic Indication Map (TIM) in detail[.]”).

Further, the Δ AID is not conceptually simply not the same as the AID field in a PPDU. An AID in a PPDU, at all relevant times in this proceeding leading up to the issuance of the '171 Patent, refers to an association ID included within a frame holding a terminal's identification information ("STA" information). That AID is unique value generated and assigned by an access point to terminals, and it is (among other things) used an access point to "identify the station for delivery" of data to and from the terminal.²

In contrast, Choi's Association Identifier Differential Value / Δ AID is the numerical *difference* between consecutive AIDs of terminals in a bitmap. *See* Choi. At [0216] ("The fifth Δ AID field is set to 01, thus indicating AID # 7 having a difference of 1 from the previous AID (i.e., AID #6). The sixth Δ AID field is set to 01, thus indicating AID # 8 having a difference of 1 from the previous AID (i.e., AID #7)."), [0219] ("For example, if the size of a Δ AID field is large (i.e., the difference between AID_i and AID_{i-1} is large), the resulting increase in the size of an EWL field indicating the size of the Δ AID field may increase the overhead of a partial virtual bitmap significantly.").

² *See, e.g.,* INTEL CORP., *Understanding IEEE 8802.11 Authentication and Association*, <https://www.intel.com/content/www/us/en/support/articles/000006508/wireless/legacy-intel-wireless-products.html> (accessed September 23, 2025).

The difference between an AID and Choi's Δ AID is not, as Petition says, so inconsequential such that a POSITA would supposedly "understand that this Δ AID field operates within a broader AID structure" and "constitutes a part of the AID field for signaling." Pet. at 53. The Δ AID value is not an AID value at all, which the Petition essentially admits. Similar to how two houses may have #1 and #2 as house numbers, and those house numbers are not the same thing (or even in the same genus of information) as the number of square meters of each parcel of land on which the two houses are located, a POSITA would not understand that the "AID" includes something like Choi's Δ AID field. What is clear is that Δ AID merely indicates AIDs through a bitmap method in a TIM broadcast message, and is fundamentally different from the AID claimed in the '171 Patent and known in the art.

Neither does the Petition's combination of Chu and Choi render obvious limitation [1.6], "the first padding field is used to adjust a length of the frame." The Petition contends that a POSITA would understand "Chu and Choi, either individually or in combination, teach the use of padding fields that are actively and functionally inserted to modify the overall length of the transmitted frame whether to provide sufficient client preparation time (Chu) or to align transmission blocks to specific unit boundaries (Choi)." Pet. at 58. This is incorrect. As noted above, the disclosures of Chu and Choi relied upon

by the Petition are different in that they are each directed to functionally and logically different frame types: Chu is directed to a scheduling frame, whereas Choi is directed to a beacon frame with a TIM element—a management frame. Because Choi's beacon frame is a broadcast frame, its length cannot be adjusted due to the preparation time for uplink transmission of a specific terminal, and so Choi cannot supply the necessary teaching for limitation [1.6]. Further, in Chu's scheduling frame, AID is located in the first field, and padding bits are at the end of the scheduling frame—one has nothing to do with the other, as the Petition expressly concedes. *See* Chu, Fig. 7B, [0093] (“scheduling frame 902 includes one or more padding bits at the end of the scheduling frame”).

VI. Conclusion

For the foregoing reasons, the Petition should be denied.

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

I certify that there are 5,009 words in this paper, excluding the portions exempted under 37 C.F.R. § 42.24(a)(1), according to the word count tool in Microsoft Word.

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