

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION, LENOVO (UNITED STATES) INC., MOTOROLA
MOBILITY LLC,
Petitioners,

v.

COLLISION COMMUNICATIONS, INC,
Patent Owner.

Case No. IPR2025-00301
U.S. Patent No. 9,814,071

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.107(a)**

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TABLE OF EXHIBITS

Exhibit	Description
2001	Declaration of Dr. Giuseppe Caire
2002	CV of Dr. Giuseppe Caire
2003	U. Madhow, <i>Fundamentals of Digital Communication</i> , Cambridge University Press 2008
2004	R.G. Gallager, <i>Principles of Digital Communication</i> , Cambridge University Press 2008
2005	RESERVED
2006	RESERVED
2007	Judge Rodney Gilstrap Motion to Stay Pending IPR Statistics
2008	June 30, 2024 Federal District Court Case Management Statistics
2009	Docket in <i>Collision Communications, Inc. v. Lenovo Group Ltd.</i> , No. 23-cv-00594 (E.D. Tex.)
2010	Scheduling Order in <i>Collision Communications, Inc. v. Lenovo Group Ltd.</i> , No. 23-cv-00594 (E.D. Tex.) Dkt 44 (Aug. 5, 2024)
2011	Declaration of Dr. Giuseppe Caire

This Petition is a copycat petition seeking to join the pending Petition in IPR2024-01248, for which PTAB has not yet issued an institution decision.¹ This Petition is substantively identical to that -01248 Petition, and it should be denied for the same reasons set forth in Patent Owner’s Preliminary Response to the -01248 Petition.

Accordingly, the following Preliminary Response is substantively identical to Patent Owner’s -01248 Preliminary Response and repeats all of those reasons for denial. In addition, Patent Owner has updated the following *Fintiv* section to address the present petitioners and align with the recission of the June 21, 2022, Director’s Memorandum entitled “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” (“Guidance Memo”).

I. Introduction

The Board should deny institution because (1) neither Petition Grounds 1-3 nor Grounds 4-5 establishes the required reasonable likelihood of success; and (2)

¹ Patent Owner has retained Giuseppe Caire, Ph.D. in this proceeding. (EX2011). Dr. Caire has adopted his prior opinions set forth in EX2001 (submitted in IPR2024-01248) and, for expediency, this Patent Owner Preliminary Response cites to Dr. Caire’s previously submitted declaration, also presented herein as EX2001.

the ongoing parallel district court proceedings establish that institution should be discretionally denied under *Fintiv*.

Lack of Reasonable Likelihood of Success: The inventions of the '071 patent were developed in conjunction with the U.S. government and concern improved systems and methods for processing signals received in a wireless communication system. Specifically, the patent concerns improved media access control protocol for multi-user detection (“MUD”) enabled ad-hoc wireless communications.

But because the asserted *Jin* and *Baum* references do not disclose the claimed specific improvements, Petitioners mischaracterize the inventions of the '071 patent, arguing that although “the '071 purports to introduce a MUD system that uses an unshared channel to send parameters for the signals to be transmitted over the shared communication channel[,]” these systems “were already well known.” (Pet. at 19).

But contrary to the Petition, the disclosed claimed inventions were not well known in the art. Rather, the '071 patent discloses and claims **specific improved** methods for using an unshared parameter channel for nodes to transmit and allow the base station to estimate channel parameters that mitigates the need for the MUD to detect the parameters on the shared channel in the presence of interference

from other nodes. This novel use of the unshared parameter channel allows the MUD to operate with lower complexity and allows for more efficient use of the shared communication channel. The Petition does not demonstrate that this novel approach is disclosed in the asserted *Jin* and *Baum* references.

Grounds 1-3: For example, Grounds 1-3 challenge claims 1-11, 16, and 21, each of which recites “detecting the parameter-estimating signals on the unshared parameter channels and estimating therefrom at least one unique signal parameter for each of the transmitting nodes” and “detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters.” But the Petition does not identify any such disclosures in *Jin*. The Petition cannot because *Jin* is completely silent regarding estimating unique signal parameters from a parameter-estimating signal on an unshared channel for each of the transmitting nodes, and then using those unique signal parameters to detect and distinguish information simultaneously received from each of the transmitting nodes as claimed.

Grounds 4-5: Similarly, Grounds 4-5 challenge claims 1-11, 16, and 21, each of which recites “requiring each transmitting node to transmit a parameter-estimating signal on an unshared said parameter channel” and “detecting and

distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters.” The Petition fails to show that *Baum* requires each transmitting node to transmit a parameter-estimating signal on an unshared said parameter channel. Further, the Petition fails to establish that *Baum* detects and distinguishes the information simultaneously received from each of the transmitting nodes.

Discretionary Fintiv Denial: The *Fintiv* factors heavily weigh in favor of discretionary denial. In an attempt to characterize every factor as either neutral or favoring institution, the Petition is rife with conclusory statements and misapplications of controlling PTAB precedent. Under the appropriate legal standards—and considering the totality of the record evidence—on balance, the *Fintiv* factors support discretionary denial of institution.

II. Wireless Communication Background

The challenged claims generally concern the processing of wireless signals. More specifically, the patent is directed to improved methods for a media access control protocol for multi-user detector enabled ad hoc wireless communications.

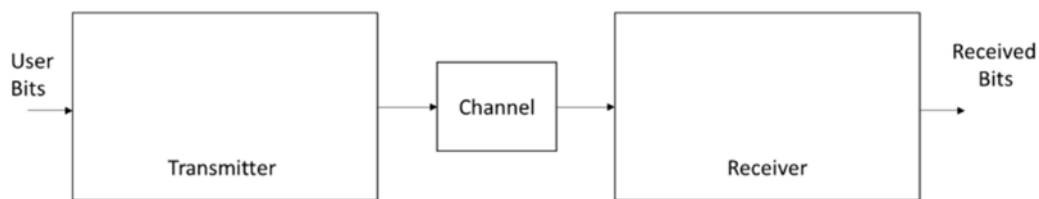
To provide context for the claimed subject matter and the Petition, the following brief background addresses the following topics:

- wireless channels; and

- detectors.

A. Wireless Channels

A wireless communications system typically includes a transmitter that sends information to a receiver over a wireless channel. (EX2001 at ¶ 6; EX2003 at 2-4; EX2004 at 1-5, 95, 181-183, 208-209).



As illustrated in the above overview, information in the form of bits (sequences of 0s and 1s) is input to the transmitter, which first converts those bits into a high-frequency wave signal and then transmits that signal over the wireless channel to the receiver. (EX2001 at ¶ 17; EX2003 at 2-4; EX2004 at 1-5, 95, 181-183, 208-209).

This wireless channel is the medium through which the signal is transmitted. (EX2001 at ¶ 18). For example, in a wireless cell phone communication, the channel could be affected by the relay towers used to transmit the waves and the physical spaces between those towers, including all buildings and other surfaces that may reflect, refract, or absorb parts of the travelling waves. (EX2001 at ¶ 18).

By the channel's very nature, as the electromagnetic wave signal passes through the channel, noise is introduced, and information can be lost or corrupted. (EX2001 at ¶ 19; EX2003 at 2-4; EX2004 at 1-5, 95, 181-183, 208-209).

Thus, when a receiver receives the electromagnetic signal and attempts to convert it back into bits, the noise must be accounted for and can affect the accuracy of the conversion and reproduction of the original signal. (EX2001 at ¶ 20; EX2003 at 2-4; EX2004 at 1-5, 95, 181-183, 208-209).

B. Detectors

Each receiver includes a “detector” that tries to recover the desired transmitted signal. A detector can fall into two categories: (1) single-user detectors or (2) multi-user detectors. (EX2001 at ¶ 21).

Regardless of the number of users or interferers, the goal of a single-user detector is to recover the signal from only a single user. Accordingly, instead of attempting to recover all signals from all users, a single-user detector uses algorithm that focuses on the signal from just one user and treats all other user signals as noise. (EX2001 at ¶ 22).

In contrast, the goal of a multi-user detector is to recover signals from two or more users. Thus, instead of treating and discarding the other user's signals as

noise, a multi-user detector uses an algorithm designed to detect each such signal. (EX1001 at Abstract; EX2001 at ¶ 23).

III. The Challenged Patent

The '071 patent's claimed subject matter aims to boost the capacity of wireless networks by enabling multiple devices (or nodes) to transmit overlapping signals on a shared channel. This approach permits interference among signals and relies on Multi-User Detection (MUD) to differentiate them. (EX1001 at Abstract; EX2001 at ¶ 25).

While the '071 patent acknowledges the advantages of a shared multi-user environment where users can leverage a common communication medium, it recognizes the inherent limitation in traffic capacity due to resource allocation constraints. (EX1001 at 3:4-14; EX2001 at ¶ 26). As seen in the prior art, the inability of different users to share the same time, frequency, and/or code for transmission restricts the amount of data that can be transmitted simultaneously. (*Id.*). The '071 patent seeks to overcome this limitation through the innovative use of MUD technology. (EX1001 at 3:18-23; EX2001 at ¶ 26).

The '071 patent introduces a method for distinguishing multiple signals that overlap in time, frequency, and/or code on a shared channel using a MUD. This

technique hinges on knowing or accurately estimating the signal parameters of each interfering signal. To achieve this, the '071 patent proposes a method where:

- Each node transmits a unique parameter-estimating symbol pattern on a separate, unshared channel. (EX1001 at 3:43-49).
- Simultaneously, each node transmits data on the shared channel, allowing the signals to overlap and interfere with one another. (EX1001 3:40-43).

The receiver uses the signal parameters, estimated from the parameter-estimating signals on the unshared channel, to distinguish and recover the overlapping signals. (EX1001 at 3:49-54). This separation of data signals on the shared communication channel can eliminate the need for anti-collision protocols, allowing simultaneous data transmission and increasing network capacity.

Further, by using these parameter-estimating signals on an unshared parameter channel, the receiver can operate with lower complexity because it does not need to estimate the parameters in the presence of interference from other nodes. (EX1001 at Abstract). This allows for more efficient use of the shared wireless channel.

The '071 patent explains that each signal transmitted by a node carries specific signal parameters. These parameters can be estimated by the receiver

using parameter-estimating symbol patterns transmitted by each node on dedicated parameter channels.

This approach enables the receiver to effectively perform the following steps: (1) acquire parameter channels; (2) estimate unique signal parameters for each transmitting node using the parameter-estimating symbols; and (3) detect and distinguish the received data by leveraging the unique estimated signal parameters, successfully separating the overlapping signals.

A. The Challenged Claims

The foregoing innovative approaches are embodied in the challenged claims, each of which requires estimating unique signal parameters from a parameter-estimating signal on an unshared channel for each transmitting node and then detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective unique estimated signal parameters. (*See, e.g.*, EX1001 at claims 1-11, 16, and 21).

And consistent with the foregoing, all of the challenged claims additionally include the following limitations:

- “requiring each transmitting node to transmit a parameter-estimating signal on an unshared parameter channel;”

- “detecting the parameter-estimating signals on the unshared parameter channels and estimating therefrom at least one unique signal parameter for each of the transmitting nodes;” and
- “detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters.”²

(See, e.g., EX1001 at claims 1 and 21).

For example, each of these limitations is present and highlighted in the following exemplary claim 1:

1. A method for enabling a receiving node to distinguish information simultaneously received from a plurality of transmitting nodes on a shared communication channel of a wireless digital network, the method comprising:

providing a plurality of parameter channels on the network in addition to the shared communication channel;

requiring each transmitting node to transmit a parameter-estimating signal on an unshared said parameter channel;

detecting the parameter-estimating signals on the unshared parameter channels and estimating therefrom at least one **unique signal parameter** for each of the transmitting nodes; and

² Claim 21 substitutes the term “simultaneously” with “concurrently.” The Petition treats these terms as synonyms, and Patent Owner agrees.

detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said **unique estimated signal parameters**.

(EX1001 at claim 1).

IV. The Petition

The Petition asserts the following Grounds:

Ground	References	Basis	Challenged Claims
1	<i>Jin</i>	§ 103	1-11, 16, 21
2	<i>Jin</i> and <i>Tsai</i>	§ 103	6-7
3	<i>Jin</i> and <i>Vrzic</i>	§ 103	8-9
4	<i>Baum</i>	§ 103	1-11, 16, 21
5	<i>Baum</i> and <i>Tsai</i>	§ 103	6-7

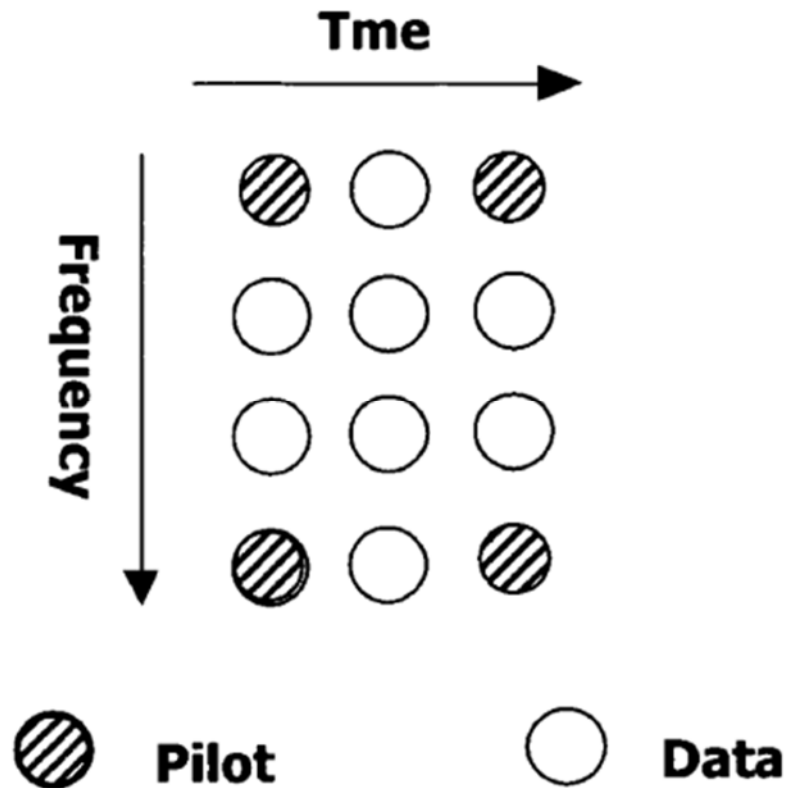
The Petition relies on two primary references for all its grounds, *Jin* and *Baum*, but both *Jin* and *Baum* fail to disclose all of the required claim limitations of independent claims 1 and 21.³

A. *Jin*

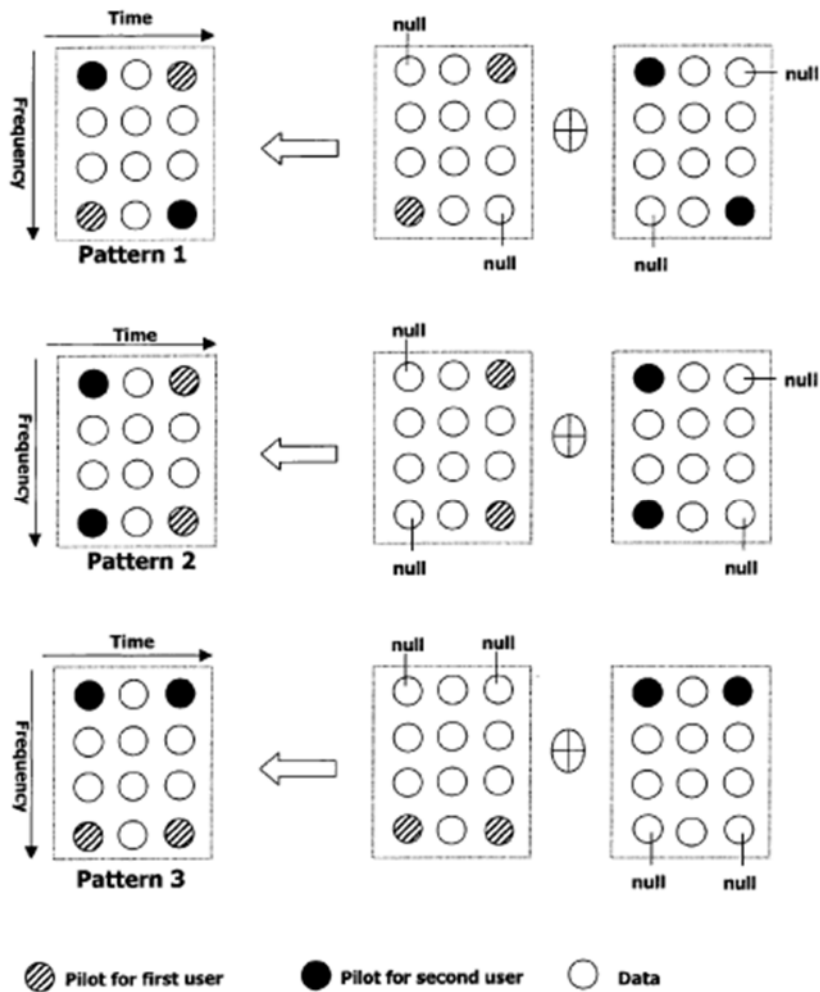
Jin (EX1004) generally relates to the allocation of radio resources in an orthogonal frequency division multiplexing (“OFDM”) system. *Jin* discloses a method of sharing a basic allocation unit (“tile”) between two users. A tile includes many orthogonal subcarriers. Some of these subcarriers are used for pilot

³ For Grounds 1-5, the Petition only addresses independent claim 1 and then references the evidence of claim 1 without adding any other evidence for its analysis of independent claim 21. For this reason, this preliminary response only addresses the Petition’s arguments for independent claim 1 for Grounds 1-5.

signals, whereas the other subcarriers are used for data transmission. A tile in *Jin*'s system is disclosed in FIG. 6 of *Jin*:



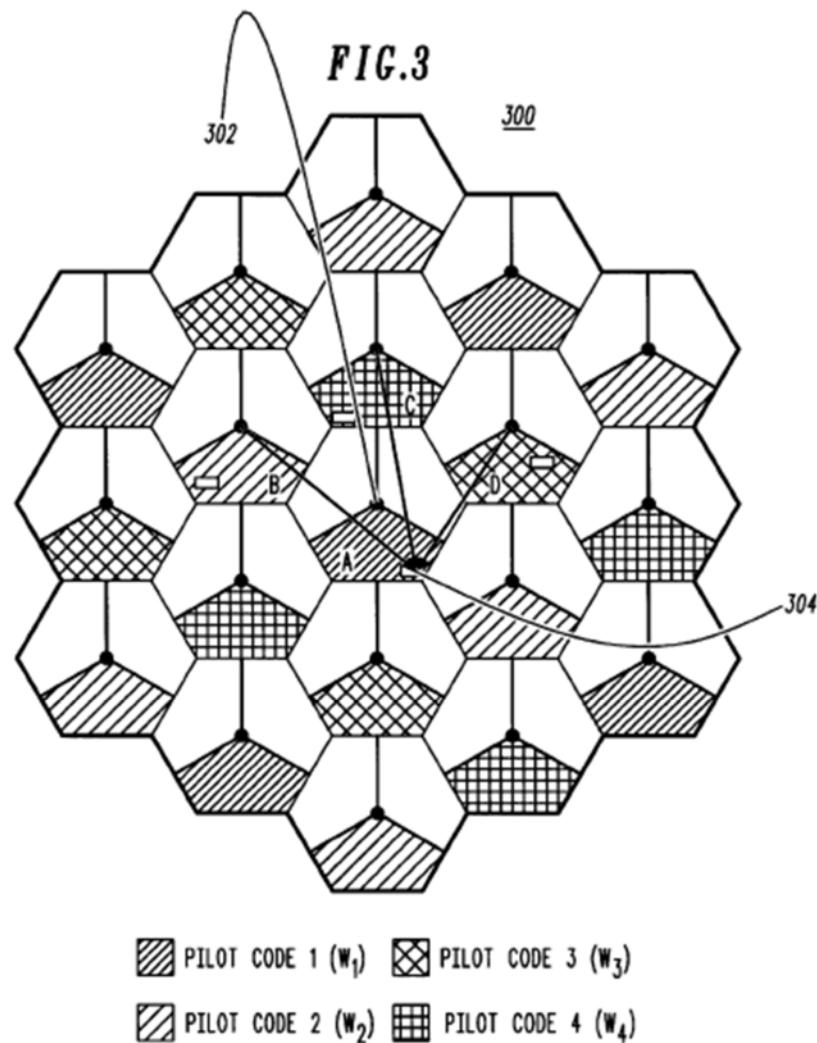
(EX1004 at FIG. 6; EX2001 at ¶ 34). The tile disclosed in FIG. 6 includes one user's pilot signal on each corner. The pilot signal is a reference signal for the base station to identify a particular user. The base station uses a radio allocation map to indicate which pilot a user should use for transmission. (EX1004 at ¶ [0032]; EX2001 at ¶ 34). In *Jin*'s system, *Jin* discloses different pilot patterns that include two users as shown below in FIG. 7A:



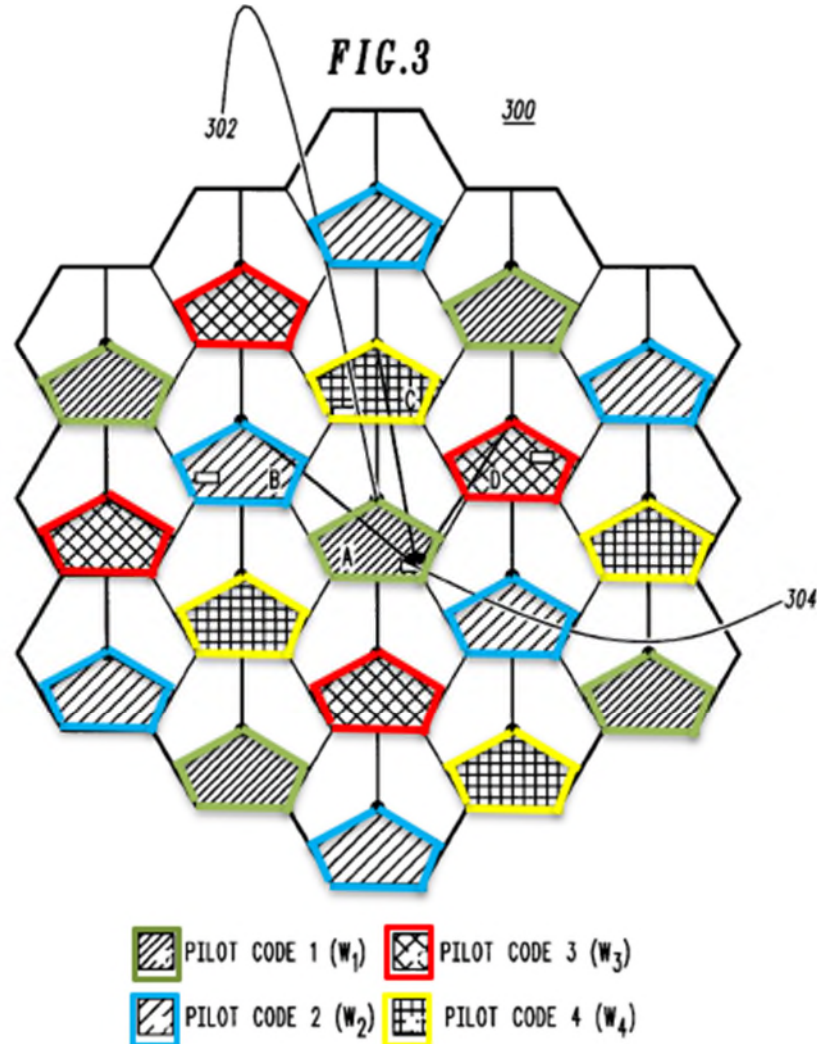
(EX1004 at FIG. 7A; EX2001 at ¶ 34). In FIG. 7A orthogonal pilot signals are used in each pattern that do not overlap with one another. These orthogonal pilot patterns purport to allow the base station to identify which user is transmitting on a tile. (EX1004 at ¶ [0072]; EX2001 at ¶ 34). In *Jin*, because two users can transmit on the same tile, the received signal at the base station will include multiple signals. *Jin* purports to use these orthogonal pilot patterns to identify the user that is transmitting and to divide the received signal into each of the users' signals.

B. *Baum*

Baum (EX1005) is directed to a synchronous coherent orthogonal frequency division multiplexing system. (EX1005 at Abstract; EX2001 at ¶ 35). *Baum* explains that the invention relates to an OFDM wireless system that reduces the impact of interference. (EX1005 at 1:7-10; EX2001 at ¶ 35). In particular, *Baum* calls his OFDM system a Synchronous Coherent OFDM (SC-OFDM) system, which includes a plurality of SC-OFDM transmitters and receivers comprised of base units and subscriber units. (EX1005 at Abstract; EX2001 at ¶ 35). An embodiment of *Baum*'s SC-OFDM system is depicted in FIG.3:



(EX1005 at FIG. 3; 6:1-38; EX2001 at ¶ 35). As can be seen in FIG. 3, *Baum* discloses a cellular re-use pattern that repeatedly re-uses four pilot codes in a hexagonal pattern. That is, *Baum* describes a system where the four pilot codes are re-used repeatedly in a pattern that attempts to spatially separate them. For example, the annotated figure below shows how each of the four pilot codes are reused as each pilot code is highlighted with the same color:



(EX1005 at FIG. 3 (annotated); EX2001 at ¶ 35).

Baum's FIG. 3 describes a scenario where the base unit 302 in sector A is transmitting a desired signal to a subscriber unit 304 in the same sector. (EX1005 at 6:1-38; EX2001 at ¶ 36). Neighboring sectors using different pilot codes interfere with this transmission and are considered co-channel interfering signals. (*Id.*). *Baum* describes these interferers as "primary co-channel interfering signals from the

base units in the first ring of the surrounding cells.” (EX1005 at 6:16-21; 9:24-36; EX2001 at ¶ 36).

In *Baum*’s system, to detect the desired signal, the receivers can “measure/monitor” the relative propagation delay and the subcarrier phase difference of the dominant interfering signals. (EX1005 at 9:27-36; EX2001 at ¶ 37). *Baum* discloses that these measurements can be made on a broadcast synchronization signal. (EX1005 at 19:50-59; EX2001 at ¶ 37). But *Baum*’s broadcast synchronization signal is an optional signal for the SC-OFDM transmitters, as *Baum* explains that “[t]he SC-OFDM transmitter may, where selected, transmit at least one of: synchronization signals and identification signals.” (EX1005 at 24:39-50; EX2001 at ¶ 37). Therefore, *Baum*’s synchronization signal that can be used to measure the relative propagation delay and subcarrier phase differences of the interfering signals is not a required signal.

Baum discloses many embodiments of its SC-OFDM system, and in a separate embodiment than the embodiment depicted in FIG. 3, a “joint detection” is used. (EX1005 at 18:1-48; EX2001 at ¶ 38). In this separate and distinct embodiment, *Baum* explains that the desired signal and the interfering signal components can be “treated as a new desired signal called the joint desired signal.” (EX1005 at 18:9-17; EX2001 at ¶ 38).

V. The Petition Should be Denied Because Each Asserted Ground Fails to Establish the Required Likelihood of Success

The Petition should be denied because as established in the following sections, Grounds 1-5 all fail to establish the required reasonable likelihood of success.

A. Grounds 1-3

1. The Petition Fails to Show that *Jin* Discloses or Renders Obvious Claims 1-11, 16, and 21

The Petition fails to show that *Jin* discloses or renders obvious claims 1-11, 16, and 21 of the '071 patent for at least two independent reasons: (1) The Petition fails to demonstrate that *Jin* discloses the claimed “unique signal parameters” required by both claim limitations 1c and 1d; and (2) The Petition fails to demonstrate that *Jin* discloses or renders obvious the claimed “detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters.” (EX2001 at ¶ 39).

a. *The Petition fails to identify the claimed estimated unique signal parameters required by both claim limitations 1c and 1d*

The Petition fails to identify the claimed estimated unique signal parameters that are required in both claim limitations 1c and 1d. First, claim limitation 1c requires the “unique signal parameters” for each of the transmitting nodes to be

estimated from the detected parameter-estimating signals on the unshared parameter channels. (EX2001 at ¶ 40). Then, claim limitation 1d requires the information simultaneously received from each of the transmitting nodes to be detected and distinguished “according to their respective said **unique estimated signal parameters.**” (EX1001 at claim 1). The Petition fails to identify anything in *Jin* that satisfies both claim limitations. (Pet. at 40-41; EX2001 at ¶ 40).

To satisfy claim limitation 1c, the Petition alleges that “phase differences and radio channel parameters are unique signal parameters.” (Pet. at 41). But *Jin* never discloses “phase differences” or “radio channel parameters.” (See EX1004; EX2001 at ¶ 41). For example, the Petition claims that “*Jin* discloses the base station uses the received pilot pattern signal to ‘identify which user (i.e., mobile terminal) has transmitted the received data’ by estimating phase differences and ‘measuring the radio channel for each user and compensating the channel, and applies it to a method for dividing data of users.’” (Pet. at 40-41). To support this proposition, the Petition cites to paragraphs 72 and 78 of *Jin* and paragraph 89 of Dr. Min’s declaration. (Pet. at 40-41; EX1004 at ¶¶ [0072], [0078]; EX1003 at ¶ 89). But paragraphs 72 and 78 of *Jin* are silent regarding estimating phase differences and radio channel parameters. (EX1004 at ¶¶ [0072], [0078]; EX2001 at ¶ 41). Paragraph 78 of *Jin* discloses that the base station uses a pilot signal for

measuring a radio channel, but *Jin* is completely silent regarding how it measures the radio channel and what it measures. (EX1004 at ¶ [0078]; EX2001 at ¶ 41). And Dr. Min simply parrots the same language as the Petition and never explains how *Jin* discloses the estimated “phase differences” and “radio channel parameters” that the Petition alleges are the claimed estimated “unique signal parameters.” (EX1003 at ¶ 89; EX2001 at ¶ 41). Thus, the Petition fails to identify the required “unique signal parameters” estimated from the detected parameter-estimating signals on the unshared parameter channels for each of the transmitting nodes. (EX2001 at ¶ 41).

To satisfy claim limitation 1d, the Petition then claims that the required “unique estimated signal parameters” are not the previously alleged “phase differences” or “radio channel parameters” (neither of which are disclosed in *Jin*), but instead is the “unique pilot parameter”: “*Jin* discloses that the base station uses the unique pilot parameter (*i.e.*, ‘**unique estimated signal parameters**’).” (Pet. at 41 (emphasis in the original)).

As an initial matter, *Jin* does not disclose any “unique pilot parameter” and instead discloses unique pilot **patterns**. (See EX1004; EX2001 at ¶ 43). But not only is the “unique pilot parameter” different than the previously alleged “phase differences” and “radio channel parameters, the unique pilot patterns cannot be the

claimed “unique estimated signal parameters” because the pilot patterns are known beforehand because they are transmitted from the base station to the transmitting nodes in a radio allocation map, and therefore, are not estimated as required by claim limitation 1d. (EX1004 at ¶ [0032]; EX2001 at ¶ 43). Therefore, the “unique pilot parameter” does not qualify as a “unique estimated signal parameter” that is required to detect and distinguish the information simultaneously received from each of the transmitting as required by claim limitation 1d. (EX2001 at ¶ 43).

Thus, the Petition fails to show that the required “unique signal parameters” required in both claim limitations 1c and 1d is disclosed or rendered obvious by *Jin*. (EX2001 at ¶ 44).

b. *The Petition fails to demonstrate that Jin discloses or renders obvious claim limitation 1d*

The Petition fails to show that *Jin* discloses or renders obvious claim limitation 1d because the Petition fails to show that every claim element of 1d is disclosed. (EX2001 at ¶ 45).

For example, claim limitation 1d requires: “detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters.” (EX1001 at claim 1). The Petition claims that “the data (*i.e.*, ‘**information**’) from each user (*i.e.*, ‘**transmitting node**’) is detected and distinguished when received by the base

station by ‘analyz[ing] a pilot pattern of the basic allocation unit received ... to identify which user (i.e. mobile terminal) has transmitted the received data.’” (Pet. at 41 (emphasis in the original)). But *Jin*’s disclosure of analyzing a pilot pattern says nothing about detecting or distinguishing data according to the requirements of claim limitation 1d. (EX10014 at ¶ [0072]; EX2001 at ¶ 46). *Jin* clearly states that the pilot pattern is used to identify which user transmitted the data:

[0072] The base station analyzes a pilot pattern of the basic allocation unit received over the uplink to identify which user (i.e., mobile terminal) has transmitted the received data. In other words, the base station identifies whether the received data is from user 1 or user 5 by analyzing the pilot pattern included in the basic allocation unit.

(EX1004 at ¶ [0072]). In other words, *Jin* discloses a method of identifying which user is transmitting on a basic allocation unit. Using a pilot pattern to identify which user transmitted data is not the claimed “detecting and distinguishing the information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters” required by claim limitation 1d. The Petition also cites to ¶ [0074] of *Jin* to support its proposition, but that paragraph simply describes the different possible pilot patterns in *Jin*’s OFDM system. (EX1004 at ¶ [0074]; FIG. 7A; EX2001 at ¶ 46).

The Petition then attempts to elaborate on its assertion that *Jin*’s analysis of a pilot pattern is the same as the claimed detecting and distinguishing, but the

Petition fares no better here. (Pet. at 41). For example, the Petition then claims that “Jin discloses that the base station uses the unique pilot parameter (*i.e.*, **‘unique estimated signal parameters’**) to ‘identify which user (*i.e.*, mobile terminal) has transmitted the received data’ (*i.e.*, **‘detecting and distinguishing’**) by estimating phase differences and ‘measuring the radio channel for each user and compensating the channel.’ (Pet. at 41 (emphasis in the original)). As previously discussed, the “unique pilot parameter” cannot satisfy the required “unique estimated signal parameters,” so it cannot be used to detect and distinguish the information simultaneously received from each of the transmitting nodes as required by claim limitation 1d. (EX2001 at ¶ 47).

Finally, the Petition fails to show that estimating phase differences and measuring the radio channel for each user and compensating the channel and then applying it to a method for dividing data of users is the same as the claimed “detecting and distinguishing” of claim limitation 1d. (See Pet. at 41; EX2001 at ¶ 48). As previously discussed, *Jin* does not disclose “estimating phase differences” as alleged in the Petition. Further, the Petition does not even attempt to explain how the two concepts are the same because they are not the same. For example, as *Jin* explains, the pilot signal is used to measure the radio channel and compensate it due to distortions. (EX1004 at ¶ [0078]; EX2001 at ¶ 48). The Petition does not

explain how a POSITA would understand that this concept is the same as the claimed “detecting and distinguishing” required by claim limitation 1d. (EX2001 at ¶ 48).

Further, the Petition does not explain how *Jin*’s disclosure of applying a method of dividing data of users meets the claimed “detecting and distinguishing” because a POSITA would understand that “dividing” is a much “simpler” process than “distinguishing.” (EX2001 at ¶ 49). A POSITA would understand that “dividing” simply involves partitioning elements into parts or groups, without necessarily recognizing their distinct identities or characteristics in order to differentiate and distinguish them. (EX2001 at ¶ 49).

B. Grounds 4-5

1. The Petition Fails to Show that *Baum* Discloses or Renders Obvious Claims 1-11, 16, and 21

The Petition fails to show that *Baum* discloses or renders obvious claims 1-11, 16, and 21 of the ’071 patent for two reasons. (EX 2001 at ¶ 50). First, the Petition does not demonstrate that *Baum* discloses or renders obvious “requiring each transmitting node to transmit a parameter-estimating signal on an unshared parameter channel” as required by claim limitation 1b. Second, the Petition does not establish that joint-detection embodiment in *Baum* is applicable to the non-joint detection embodiments and therefore does not show that *Baum*

discloses or renders obvious the “detecting and distinguishing the information simultaneously received from each of the transmitting nodes” as required by claim limitation 1d.

- a. ***The Petition fails to demonstrate that Baum discloses or renders obvious “requiring each transmitting node to transmit a parameter-estimating signal on an unshared parameter channel” as required by claim limitation 1b***

The Petition fails to demonstrate that *Baum* discloses or renders obvious “requiring each transmitting node to transmit a parameter-estimating signal on an unshared parameter channel.” (EX2001 at ¶ 51). As an initial matter, neither the Petition nor Dr. Min even attempts to address the “requiring” aspect of this claim limitation and simply ignores it. (Pet. at 72-73; EX1003 at ¶¶157-159; EX2001 at ¶ 51). And for good reason because the “synchronization signal” that the Petition relies on in *Baum* is not required to be transmitted and is optional.

For example, claim limitation 1b recites “***requiring*** each transmitting node to transmit a parameter-estimating signal on an unshared said parameter channel.” (EX1001 at claim 1). In the analysis for this claim limitation, the Petition never addresses it, and simply ignores it. (Pet. at 72-73; EX2001 at ¶ 52). Similarly, Dr. Min ignores it in his declaration. (EX1003 at ¶¶157-159; EX2001 at ¶ 52).

Baum does not require that each transmitting node transmit a parameter-estimating signal on an unshared parameter channel. (EX2001 at ¶ 53). The

Petition relies upon *Baum*'s synchronization signal as the alleged parameter-estimating signal on an unshared parameter channel. (Pet. at 72). The Petition then argues that each transmitting node transmits a parameter-estimating signal on an unshared said parameter channel. (Pet. at 72). But *Baum* does not require all the transmitting nodes to transmit a parameter-estimating signal on an unshared parameter channel, and the portion of *Baum* relied upon in the Petition demonstrates just the opposite - that transmission of the synchronization signal is optional and not a required signal as in claim limitation 1b. (EX2001 at ¶ 53). For example, *Baum* explains:

The SC-OFDM transmitter may, where selected, transmit at least one of: synchronization signals and identification signals. At least one of: the synchronization signals and the identification signals may typically be one of: A) non-interfering with a synchronization/identification signal from another SC-OFDM transmitter; and B) separable from a synchronization/identification signal from another SC-OFDM transmitter. Where selected, the SC-OFDM transmitter may transmit at least one of the synchronization signal and the identification signal at a different time/frequency/code than the synchronization/identification signal transmitted by the other SC-OFDM transmitter.

(Pet. at 72; EX1005 at 24:39-50). That is, *Baum* discloses that the SC-OFDM transmitter that the Petition relies upon need only transmit “**at least one of** the synchronization signal and the identification signal” at a different time and frequency as the signal transmitted by the other transmitter. (EX2001 at ¶ 53).

Therefore, because the transmission of the synchronization signal is optional, there is no “requiring” that each transmitting node transmits the synchronization signal on the alleged unshared parameter channel. (EX2001 at ¶ 53). As *Baum* explains, instead of the synchronization signal, the SC-OFDM transmitter can transmit an identification signal. (EX1005 at 24:39-50; EX2001 at ¶ 53).

Further, the lenient language in *Baum* such as “may” and “where selected” highlighted in the passage above is not consistent with the requiring element of claim limitation 1b. (EX2001 at ¶ 54).

For these reasons, the Petition fails to demonstrate that *Baum* discloses or renders obvious required claim limitation 1b: “requiring each transmitting node to transmit a parameter-estimating signal on an unshared parameter channel.” (EX2001 at ¶ 55).

b. *The Petition fails to establish that Baum discloses or renders obvious “detecting and distinguishing information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters” as required by claim limitation 1d*

The Petition fails to establish that *Baum* discloses or renders obvious “detecting and distinguishing information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters” as required by claim limitation 1d because the Petition fails to

establish that the joint detection embodiment disclosed in *Baum* is applicable to the non-joint detection embodiments disclosed in *Baum*. (EX2001 at ¶ 55).

For example, for claim limitation 1d, the Petition relies on *Baum*'s "joint detection" embodiment. (Pet. at 75-77). But the Petition impermissibly combines multiple embodiments from *Baum*, but without any explanation of why the teachings related to the ***non-joint detection*** embodiments would apply to the ***joint detection*** embodiment to teach distinguishing the individual signal components of the "joint desired signal." (EX2001 at ¶ 56). Instead of articulating why and how a POSITA could combine the different embodiments, the Petition summarily concludes that *Baum* discloses using joint detection with all its embodiments: "Baum discloses using joint detection with the detection scheme in all of the embodiments, as it states that 'diversity reception [like that disclosed in all embodiments] is still beneficial even when joint detection is employed.'" (Pet. at 76 (quoting EX1005 at 18:6-8) (annotated by the Petition); EX2001 at ¶ 56).

But the Petition has not established that the joint detection embodiment is applicable to the other non-joint detection embodiments for a couple of reasons. (EX2001 at ¶ 57). First, *Baum*'s disclosure of "even when joint detection is employed" suggests that the use of joint detection is optional and not disclosed across all embodiments. (EX2001 at ¶ 57). Further, the statement that precedes that

statement in *Baum* suggests that the diversity reception embodiment is indeed different than the joint detection embodiment as *Baum* contrasts joint detection and diversity reception: “[a] benefit of joint detection as compared to the diversity reception schemes described earlier is that joint detection does not require the use of diversity reception.” (EX1005 at 18:3-6; EX2001 at ¶ 57).

The Petition has not established that the other disclosures identified to support the alleged detecting and distinguishing claim element cited by the Petition such as “interpolation filtering” and the embodiment disclosed in *Baum*’s FIG. 3 are applicable to the joint detection embodiment. (Pet. at 75-77; EX2001 at ¶ 58). The Petition fails to present any basis for applying the teachings of one embodiment in *Baum* to the other or whether it would have been obvious to a POSITA to somehow modify the teachings of the non-joint detection embodiment to apply to the joint detection embodiment. (EX2001 at ¶ 58).

For this reason alone, the Petition fails to demonstrate that *Baum* discloses or renders obvious “detecting and distinguishing information simultaneously received from each of the transmitting nodes according to their respective said unique estimated signal parameters” as required by claim limitation 1d. (EX2001 at ¶ 59).

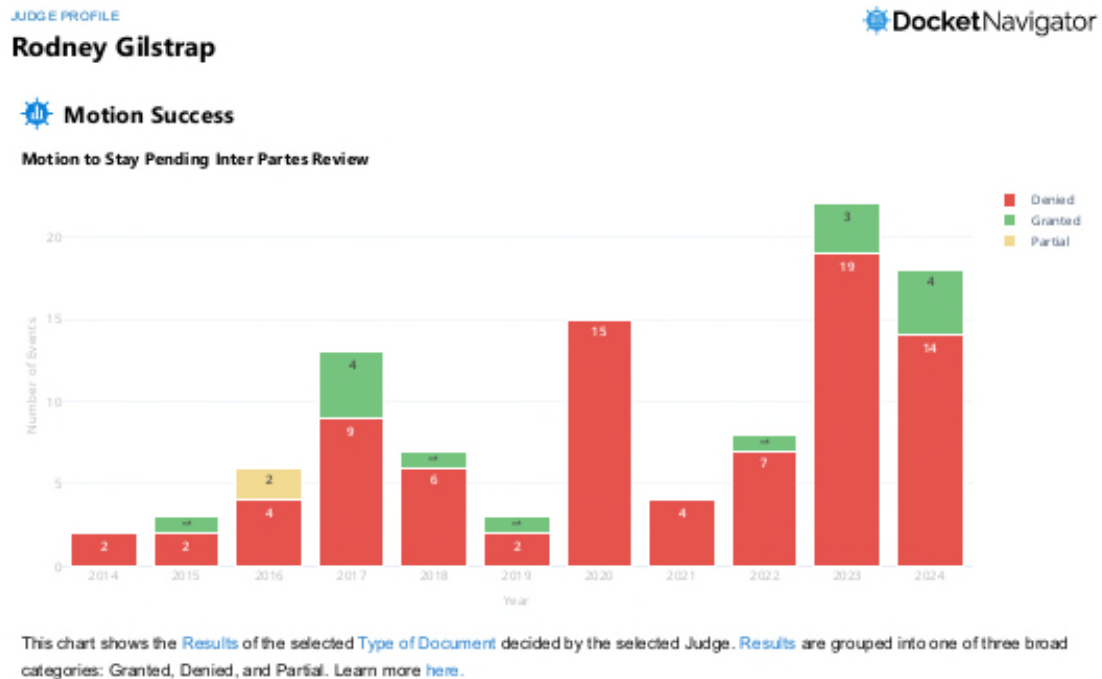
VI. The *Fintiv* Factors Heavily Favor Discretionary Denial Of Institution Under § 314(A)

Patent Owner is currently asserting the challenged patent against the parent company of Petitioners Lenovo (United States) Inc. and Motorola Mobility LLC in the Eastern District of Texas, which has set a trial date for January 5, 2026, which is over five months earlier than a final written decision in the requested IPR.

Accordingly (and as established below), the *Fintiv* factors heavily weigh in favor of discretionary denial. In an attempt to characterize every factor as either neutral or favoring institution, the Petition is rife with conclusory statements and misapplications of controlling PTAB precedent. Under the appropriate legal standards—and considering the totality of the record evidence—the *Fintiv* factors support discretionary denial of institution. PTAB’s recent rescission of the Guidance Memo only strengthens this support for a *Fintiv* discretionary denial.

A. Factor 1: Whether a stay exists or is likely to be granted if a proceeding is instituted

Petitioners admit that it has not sought a stay in the district court, and Patent Owner represents that it will not seek nor agree to a stay. Further, here other evidence exists that makes stay very unlikely. Over the past ten years, the presiding district court judge has denied over 83% of motions to stay pending *inter partes* review.



EX2007. Because the Petition does not even go as far to suggest that Petitioners will seek a stay, and because Judge Gilstrap has denied the overwhelming majority of motions to stay pending *inter partes* review, this factor weighs in favor of discretionary denial.

B. Factor 2: Proximity of the court’s trial date to the Board’s projected statutory deadline

Here, any final written decision would issue ***over five months*** after the trial date and a decision on the validity defenses presented therein. If the court’s trial date is earlier than the expected statutory deadline for the IPR’s final written decision, “the Board generally has weighed this fact in favor of exercising authority to deny institution.” *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11

at 9 (PTAB Mar. 20, 2020) (precedential). The trial date is set for January 5, 2026, while the statutory final written decision, if the IPR were instituted, would be June 18, 2026.

Petitioners’ suggestion that the PTAB should ignore this much earlier trial date in light of the Guidance Memo is improper because PTAB has withdrawn that Guidance Memo. *See* Pet. at 93-94. Moreover, there was no basis in the first place for Petitioners’ speculation that “additional delays are likely.” *See* Pet. at 94.

To the contrary, the evidence of record strongly supports the conclusion that trial will occur months before any final written decision would issue. According to the most recent statistics, the time to trial for the Eastern District of Texas is 21.6 months—squarely in line with the approximately 21-month schedule set by the district court. EX2008 (June 30, 2024 Federal District Court Case Management Statistics); EX2009 (Docket in *Collision Communications, Inc. v. Lenovo Group Ltd.*, No. 23-cv-00594 (E.D. Tex.) showing complaint filing date of Dec. 12, 2023); *see also Comcast Cable Communications, LLC v. Touchstream Technologies, Inc.*, IPR2024-00324, Paper 13 at 10 (PTAB July 24, 2024) (“Patent Owner’s representation of median time-to-trial of twenty-one months is consistent with the most recent available data from the judiciary. . . . We find that the related district court litigation’s trial date and the district court’s median time-to-trial favor

denial.”) (discretionary denial granted upon rehearing); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 9 (PTAB Mar. 20, 2020) (precedential) (“If the court’s trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution under *NHK*.”).

Because any final written decision would issue substantially later than the district court trial, this factor weighs heavily in favor of discretionary denial. *See Verizon Bus. Network Servs. LLC v. Huawei Techs. Co. Ltd.*, IPR2020-01292, Paper 13 at 12 (PTAB Jan. 25, 2021) (trial date seven to eight months before expected final written decision deadline weighs in favor of discretionary denial).

C. Factor 3: Investment in the parallel proceeding by the court and parties

At best for Petitioners, this factor favors denial of institution or is neutral. Petitioners fail to evaluate the investment by both the court **and** the parties at the relevant time—at the deadline for institution. *Fintiv*, IPR2020- 00019, Paper 11 at 9-10. By the June 18, 2025 deadline for institution, the parties will have invested substantial resources in the following case events:

- Completion and service of invalidity contentions
- Completion of claim construction discovery
- Substantial completion of document production

- Exchange of privilege logs
- Filing of technical tutorials for claim construction
- Filing of opening claim construction brief
- Filing of responsive claim construction brief

EX2010 (Scheduling Order). Therefore, this case, particularly at the time of institution, will hardly be in the “very early stages of litigation” and discovery will not be in its preliminary stages. *See* Pet. at 94-95. The Parties will have expended significant resources on the district court litigation by the deadline for institution, which favors denial of institution. Finally, filing the Petitions five months after receiving Patent Owner’s infringement contentions and notice of asserted claims weighs in favor of denial of institution. *Comcast*, IPR2024-00324, Paper 13 at 15.

D. Factor 4: Overlap between issues raised in the petition and in the parallel proceeding

The Petition challenges the same claims are asserted in the district court. Due to the substantial overlap in challenged claims and the similarity of Petitioners’ claims and theories, this factor weighs in favor of discretionary denial. *Fintiv*, IPR2020-00019, Paper 11 at 12-13 (“[I]f a petition involves the same prior art challenges but challenges claims in addition to those that are challenged in the district court, it may still be inefficient to proceed because the district court may

resolve validity of enough overlapping claims to resolve key issues in the petition.”).

Petitioners’ suggestion that this factor weighs in favor of institution if the Board addresses the overlapping validity issues before they are resolved by the district court is unfounded because the district court will resolve any overlapping validity issues several months before the Board issues its final written decision. *See* Pet. at 95. Institution will not thus preserve judicial resources; it will waste them by allowing Petitioners to challenge the same claims first in the district court and then again before the PTAB. The Board can save resources by discretionarily denying this petition and allowing the district court to adjudicate the validity of these claims under the same art nearly six months *before* the PTAB.

E. Factor 5: Whether the petitioner and the defendant in the parallel proceeding are the same party

Petitioners effectively concede that the parties materially overlap here. Two of the Petitioners (Lenovo and Motorola) admittedly manufacture the products accused of infringement in this district court and are subsidiaries of the named defendant. The products of the third petitioner (Intel) are likewise accused of infringement in the district court action. *See* Pet. at 95. Accordingly, this factor is not neutral as Petitioners argue without explanation, but instead favors denial. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1,

2020) (precedential as to § II.A); *see also Comcast*, IPR2024-00324, Paper 13 at 15.

F. Factor 6: Other circumstances that impact the Board’s exercise of discretion, including the merits / Compelling Merits

No other considerations warrant discretionary denial. As discussed above, Petitioners’ case does not even meet the “reasonable likelihood” standard for the statutory institution threshold. The Petition thus falls far short of showing “compelling merits.” *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 14-16 (PTAB Mar. 20, 2020) (precedential). Further, the withdrawal of the Guidance Memo’s emphasis on a compelling challenge thus does not affect the analysis, it merely makes Petitioners’ unfounded allegations regarding the Petition’s strength even more irrelevant.

Accordingly, because the Petition fails to show compelling merits, and the *Fintiv* factors heavily support discretionary denial, the Board should deny institution.

VII. Conclusion

For the foregoing reasons, the Board should deny institution of the Petition.

Dated: March 18, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner hereby certifies, in reliance on the word count of the word-processing system (Microsoft Office Word 2010) used to prepare this preliminary response, that the number of words in this paper is 6,445. This word count excludes the tables of contents, tables of authorities, certificate of word count, certificate of service, and table of exhibits.

Dated: March 18, 2025

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CERTIFICATE OF SERVICE

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