

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

COBBLESTONE WIRELESS, LLC,
Patent Owner.

IPR2024-00316
Patent 10,368,361

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER’S EXHIBIT LIST

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Ex. 2002	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00138, Paper 1 (IPR Petition) (PTAB Nov. 30, 2023)
Ex. 2003	Federal Court Management Statistics for the Eastern District of Texas through December 2023, <i>available at</i> https://www.uscourts.gov/statistics-reports/federal-court-management-statistics-december-2023
Ex. 2004	<i>Cobblestone Wireless, LLC v. T-Mobile USA, Inc.</i> , No. 2:22-cv-00477, Dkt. No. 1 (Complaint for Patent Infringement) (E.D. Tex. Dec. 16, 2022)
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Ex. 2008	<i>Cobblestone Wireless, LLC v. AT&T Servs. Inc. et al.</i> , No. 2:22-cv-00474, Dkt. No. 12 (Proof of Service of Summons to AT&T Mobility LLC) (E.D. Tex. Dec. 23, 2022)
Ex. 2009	<i>Cobblestone Wireless, LLC v. AT&T Servs. Inc. et al.</i> , No. 2:22-cv-00474, Dkt. No. 13 (Proof of Service of Summons to AT&T Services Inc.) (E.D. Tex. Dec. 23, 2022)
Ex. 2010	<i>Cobblestone Wireless, LLC v. AT&T Servs. Inc. et al.</i> , No. 2:22-cv-00474, Plaintiff Cobblestone Wireless, LLC’s Preliminary Disclosure of Asserted Claims and Infringement Contentions (E.D. Tex., served Mar. 13, 2023)

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Ex. 2011	<i>Cobblestone Wireless, LLC v. Cellco P'Ship d/b/a Verizon Wireless</i> , No. 2:22-cv-00478, Plaintiff Cobblestone Wireless, LLC's Preliminary Disclosure of Asserted Claims and Infringement Contentions (E.D. Tex., served Mar. 13, 2023)
Ex. 2012	<i>Cobblestone Wireless, LLC v. T-Mobile USA, Inc.</i> , No. 2:22-cv-00477, Plaintiff Cobblestone Wireless, LLC's Preliminary Disclosure of Asserted Claims and Infringement Contentions (E.D. Tex., served Mar. 13, 2023)
Ex. 2013	<i>Cobblestone Wireless, LLC v. T-Mobile USA, Inc.</i> , No. 2:22-cv-00477 (lead case), Defendants' and Intervenor's Preliminary Invalidity Contentions for U.S. Patent No. 10,368,361 (E.D. Tex., served May 12, 2023)
Ex. 2014	<i>Cobblestone Wireless, LLC v. T-Mobile USA, Inc.</i> , No. 2:22-cv-00477, Dkt. No. 11 (Unopposed Application for Extension of Time to Answer Complaint) (E.D. Tex. Dec. 22, 2022)
Ex. 2015	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00135, Paper 1 (IPR Petition) (PTAB Nov. 22, 2023)
Ex. 2016	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00136, Paper 1 (IPR Petition) (PTAB Dec. 4, 2023)
Ex. 2017	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00137, Paper 1 (IPR Petition) (PTAB Nov. 22, 2023)
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Ex. 2019	<i>Cobblestone Wireless, LLC v. Samsung Electronics Co. et al.</i> , No. 2:23-cv-00285, Dkt. No. 39 (Order Granting Motion to Amend Docket Control Order) (E.D. Tex. Dec. 29, 2023)
Ex. 2020	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00138, Paper 10 (POPR) (PTAB Mar. 11, 2024)
Ex. 2021	<i>Cobblestone Wireless, LLC v. Samsung Electronics Co. et al.</i> , No. 2:23-cv-00285, Dkt. No. 1 (Complaint for Patent Infringement) (E.D. Tex. June 16, 2023)

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Ex. 2024	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00315, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023)
Ex. 2025	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00317, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023)
Ex. 2026	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00318, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023)
Ex. 2027	<i>Cobblestone Wireless, LLC v. Samsung Electronics Co. et al.</i> , No. 2:23-cv-00285, Plaintiff Cobblestone Wireless, LLC's Preliminary Disclosure of Asserted Claims and Infringement Contentions (E.D. Tex., served Sept. 23, 2023)
Ex. 2028	<i>Cobblestone Wireless, LLC v. Samsung Electronics Co. et al.</i> , No. 2:23-cv-00285, Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc.'s P.R. 3-3 and 3-4 Invalidity Contentions (E.D. Tex., served Dec. 27, 2023)

I. INTRODUCTION

The Board should deny institution of *inter partes* review (“IPR”) of U.S. Patent No. 10,368,361 (“the ’361 Patent”) for two independent reasons.

First, the Petition should be denied on the merits.¹ The ’361 Patent teaches, and its claim require, evaluation of the suitability of a spectrum resource “for the uplink channel and the downlink channel,” based on “quality status.” The Petition relies exclusively on Gaal’s disclosure of channel and interference measurement techniques, called “CSI/CQI,” for quality status under both Ground 1 and Ground 2. But Gaal teaches that its CSI/CQI techniques are only relevant to the downlink channel, not to the uplink channel, and indeed teaches that attempting to measure CSI/CQI for an uplink subframe would be “useless.” The Petition thus does not and cannot show, under either Ground 1 or Ground 2, that its cited references disclose or render obvious any determination, based on quality status information, that a “first frequency spectrum resource is a sub-optimal resource, for the uplink channel and

¹ Because “the grounds of challenge in this Petition are a ‘copycat’ of the Petition filed in *T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC*, IPR2024-00138” (Pet. at 1), the merits arguments that Patent Owner presents in this preliminary response are likewise a “copycat” of the merits arguments Patent Owner presented in its preliminary response in IPR2024-00138. *See generally* Ex. 2020.

the downlink channel.”

The Petition’s Ground 1 furthermore fails to show any assignment to a shared resource pool based on the determination of sub-optimality, as claimed. And the Petition’s Ground 2 also fails because it improperly mixes determinations related to different resources for uplink and downlink, rather than the required determination that “the [singular] first frequency spectrum resource” is sub-optimal for both uplink and downlink.

The Petition therefore fails to demonstrate a reasonable likelihood of prevailing for any of the challenged claims.

Second, the Board should exercise its discretion to deny the Petition in light of parallel district court litigations involving the same patent, the same parties (both Petitioners as well as their co-RPIs), the same claims, and the same prior art. The Petition also fails to offer any stipulation to mitigate concerns of overlap here. In addition, because Petitioners waited until *one day* before the statutory deadline to file the Petition, the district court cases involving Petitioners and their co-RPIs will be at advanced stages at the time the Board renders its institution decision. And both district court trials are also set to take place months before the deadline for any final written decision in this proceeding. All six *Fintiv* factors favor a discretionary denial.

For either or both of these independent reasons, institution should be denied.

II. BACKGROUND

A. Overview of the '361 Patent

At a high level, the '361 Patent is generally directed to certain methods and systems for allocating frequency spectrum resources to a pool of shared resources when it is determined that those resources are suboptimal, for both uplink and downlink channels, relative to other resources. In one embodiment “processor module 112 may assign the first frequency resource to shared resource pool 118 when it is determined that the first frequency spectrum resource is less suitable for an uplink channel than one or more other frequency spectrum resources available to node 110 and also is less suitable for a downlink channel than one or more frequency spectrum resource[s] that are available to node 110.” Ex. 1001 at 11:10-17. This aspect of the invention is reflected in the sole challenged independent claims 10 and 17. Claim 10 recites in relevant part:

[10.pre] A wireless base station for a wireless communication network,
the wireless base station comprising:

[10.1] a quality status module configured to *determine a
respective quality status of a first frequency spectrum resource²*
and a second frequency spectrum resource ...;

[10.2] a processor coupled to the quality status module and

² All emphases added unless otherwise noted.

configured to:

[10.3] *determine, based on the quality status of the first frequency spectrum resource, that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel*, relative to other frequency spectrum resources that are available for use by the wireless base station; and

[10.4] *in response to the determination* that the first frequency spectrum resource is the sub-optimal resource, *assign the first frequency spectrum resource to a shared resource pool*; and

[10.5-10.8] a scheduler module coupled to the processor

Id. at claim 10 (numbering added). Claim 17 similarly recites in relevant part as follows:

[17.pre] A non-transitory computer-readable medium that includes computer-executable instructions stored thereon, which in response to execution by a processor, cause the processor to perform or control performance of operations that comprise:

[17.1] *determine a quality status of a first frequency spectrum resource* that is available for use by a base station for an uplink channel or a downlink channel;

[17.2] *determine, based on the quality status, that the first frequency spectrum resource is a sub-optimal resource, for the*

uplink channel and the downlink channel, relative to other frequency spectrum resources that are available for use by the base station,

[17.3] wherein to determine that the first frequency spectrum resource is the sub-optimal resource ...;

[17.4] *in response to the determination* that the first frequency spectrum resource is the sub-optimal resource, *assign the first frequency spectrum resource to a shared resource pool*;

[17.5-17.7]

Id. at claim 17 (numbering added).

Thus, the claims require that (1) a determination be made, based on a determined quality status, that a resource is suboptimal for both the uplink *and* the downlink channel (limitations [10.3] and [17.2]); and (2) in response to that determination of uplink and downlink suboptimality, the resource is assigned to a shared resource pool (limitations [10.4] and [17.4]).

B. Summary of the Prosecution of the '361 Patent

Consistent with the description of the problem addressed in the specification, during prosecution, the Applicant amended the claims to recite what became limitations [10.3] and [17.2]. For example, pending claim 11 (which resulted in issued claim 10) was amended as follows:

11. (Currently Amended) A wireless base station for a wireless communication network, the wireless base station comprising:

a quality status module configured to determine a respective quality status of a first frequency spectrum resource and a second frequency spectrum resource, wherein each of the first frequency spectrum resource and the second frequency spectrum resource are associated with an air interface that is available for use by the wireless base station for an uplink channel or a downlink channel, ~~and to determine a quality status of a second frequency spectrum resource associated with the air interface that is available for use by the wireless base station for the uplink channel or the downlink channel;~~

a processor ~~module~~ coupled to the quality status module and configured to:

determine, based on the quality status of the first frequency spectrum resource, that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel, relative to other frequency spectrum resources that are available for use by the wireless base station; and

in response to the determination that the first frequency spectrum resource is the sub-optimal resource, assign the first frequency spectrum resource to a shared resource pool ~~based on the determined quality status of the first frequency spectrum resource;~~ and

a scheduler module coupled to the processor ~~module~~ and configured to:

schedule the second frequency spectrum resource for the uplink channel or the downlink channel based on an initial directional allocation of frequency spectrum resources for the wireless base station; and

[[to]]schedule the first frequency spectrum resource based on an updated directional allocation of frequency spectrum resources for the wireless base station.

Ex. 1002 at 332-33. Similar limitations were added to pending claim 20 (which resulted in issued claim 17). *Id.* at 335-36.

The Applicant further emphasized the importance of the added limitation of

“determining... that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel,” distinguishing prior art because it did not disclose such a determination and assignment to a shared resource pool in response to such a determination:

Liu nowhere teaches or suggests ‘*determining, based on the quality status, that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel, relative to other frequency spectrum resources that are available for use by the base station; in response to determining that the first frequency spectrum resource is the sub-optimal resource, assigning the first frequency spectrum resource to a shared resource pool,*’ as recited by amended claim 1.

...

Amended claims 11 and 20 recite analogous features, and hence, for similar reasons, claims 11 and 20 are believed to be allowable.

Id. at 327-328 (italics in original). The Examiner issued a subsequent Office Action, no longer claiming that Liu in view of other references rendered obvious pending claim 11 (issued claim 10) and also determined that pending claim 20 (issued claim 17) should be allowed. *Id.* at 340-48. After an additional amendment to pending claim 11 (*id.* at 357-58), the Examiner issued his Notice of Allowance (*id.* at 368-69).

C. Overview of Asserted References

Both Gaal and Khoryaev address problems caused by including flexible subframes within LTE communications. Gaal teaches improvements to existing channel estimation procedures performed by user equipment to avoid generating erroneous data for flexible subframes. In particular, Gaal teaches that the UE can perform channel and interference measurements of subframes using known techniques. Ex. 1004 ¶ [0082]. But Gaal is explicit that these “measurement[s] would be useless” in determining the suitability of a subframe in the uplink direction, such that Gaal only contemplates using the disclosed measurement techniques to evaluate suitability of a subframe for the downlink direction. *Id.* ¶ [0085] (“[A] flexible subframe may be of downlink direction or uplink direction. *If the UE configures an uplink subframe for interference measurement or channel measurement, the measurement would be useless.*”).

The Petition contends that Khoryaev “teaches that its methods for converting a subframe to a flexible subframe ‘can take into account inter-cell interference from macro cells.’” Pet. at 65 (quoting Ex. 1018 at 7:26-35). However, Khoryaev does not disclose what measurements would be used to convert a subframe to a flexible subframe; on that point, the Petition explicitly relies on “Gaal’s use of CSI/CQI” as the means of assigning flexible subframes. *Id.* at 66. Accordingly, neither Gaal nor Khoryaev disclose assigning flexible subframes using quality status measurements,

particularly given that the CSI/CQI measurements relied upon by the Petition are “useless” for determining uplink suitability. *See* Ex. 1004 ¶ [0084].

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes that a person of ordinary skill in the art (“POSITA”) in the field of the ’361 Patent “would have had at least a bachelor’s degree in electrical engineering, computer engineering, computer science, physics, or the equivalent, and at least two years of experience working in the field. Relevant working experience would include experience with telecommunications and networking, radio-access networking, and/or service provisioning in wireless networks. More education can supplement practical experience and vice versa.” Pet. at 3-4 (internal citations omitted, citing Ex. 1003 ¶ 42). For purposes of this preliminary response, Patent Owner does not challenge that definition.

IV. CLAIM CONSTRUCTION

The Petition states that “claims terms must be given their plain ordinary and customary meaning as understood by a POSITA during the relevant timeframe considering the specification and prosecution history.” *Id.* at 16-17. Patent Owner agrees with this notion. Patent Owner also notes that the Petition provides a construction for “quality status module.” *Id.* at 17-18. Patent Owner disagrees with the construction presented in the Petition, but does not address it in this response because construing this term is not necessary to address the issues surrounding

institution. Finally, the Petition also states that “Petitioners do not take a position as to the definiteness of the full scope of” the “sub-optimal resource” limitation. *Id.* at 18-19. Patent Owner does not understand the Petition to be proposing a construction for this term, but in any event, resolving any dispute as to the meaning of this term is not necessary for the purposes of deciding institution.

V. THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD OF PREVAILING FOR ANY CHALLENGED CLAIM.

The Petition raises two Grounds of invalidity, the first of which relies on Gaal alone, and the second of which relies on Gaal in combination with Khoryaev. As shown below, both grounds fail because neither Gaal nor Khoryaev discloses or renders obvious any determination, based on quality status, that a frequency spectrum resource is a “sub-optimal resource, *for the uplink channel and the downlink channel,*” as claimed in limitations [10.3] and [17.2]; nor does either disclose or render obvious an assignment to a shared resource pool “in response to” that determination, as claimed in limitations [10.4] and [17.4].³

³ The only challenged independent claims are claims 10 and 17. The Petition presents no additional analysis of the independent claims in its analysis of the dependent claims. Thus, the Petition’s challenges to the dependent claims fail for the same reasons as those challenges fail for independent claims 10 and 17.

Rather than teaching these specific requirements of the '361 Patent, Gaal teaches, under the Petition's own theory, a quality status determination, and accordingly a sub-optimality determination, that is unrelated and inapplicable to the uplink channel. *See* Ex. 1004 ¶ [0085] (“[A] flexible subframe may be of downlink direction or uplink direction. *If the UE configures an uplink subframe for interference measurement or channel measurement, **the measurement would be useless.***”). Indeed, the Petition makes clear that it believes limitations [10.3] and [10.4] (and corresponding limitations [17.2] and [17.4]) merely recite “determining that a first frequency spectrum resource is ***sub-optimal relative to other resources*** and, in response, assigning that first resource to a shared resource pool.” Pet. at 57-58. Entirely missing from the Petition's characterization and analysis of those limitations, however, is any acknowledgement that the claims require determining that a first frequency spectrum resource is sub-optimal “for the uplink channel ***and*** the downlink channel,” and in response to ***that*** more particularized determination, assigning that first resource to a shared resource pool.

The Petition's second ground, which combines Khoryaev with Gaal, does not remedy these deficiencies because it continues to rely exclusively on Gaal's interference and channel measurements, which are “useless” for the uplink channel. Although the Petition alleges it would have been obvious to use Gaal to determine a sub-optimal resource as claimed, this cannot be the case, including because of the

explicit teaching away in Gaal. Furthermore, even the Petition’s alleged combination of Gaal and Khoryaev fails to disclose the required determination that “the [singular] first frequency spectrum resource” is sub-optimal for both uplink and downlink channels.

Because each asserted ground fails to show invalidity in multiple ways, institution should be denied.

A. The Petition’s Ground 1 theory fails.

In the Petition’s Ground 1 theory, each claimed “first frequency spectrum resource” is necessarily mapped to a “subframe,” *i.e.*, one of the ten temporal subdivisions of an LTE frame. *See* Pet. at 3-7 (explaining subframes). Only subframes are alleged to meet all limitations of the independent claim with respect to the “first frequency spectrum resource” limitation of claims 10 and 17. *Id.* at 37-39 (identifying only subframes as being the “first frequency spectrum resource” recited in limitation [10.4]); *id.* at 41-45 (same for limitations [10.6]-[10.8]); *id.* at 50-57 (same for limitations [17.1]-[17.7]).

Thus, in order for the Petition’s invalidity theory with respect to Ground 1 to succeed, there must be a “[10.1] determin[ation of] a respective quality status of a first [subframe],” a “[10.3] determin[ation], based on the quality status of the first [subframe], that the first [subframe] is a sub-optimal resource, for the uplink channel *and* the downlink channel... and [10.4] in response to the determination that the first

[subframe] is the sub-optimal resource, assign the first [subframe] to a shared resource pool.” ’361 Patent at claim 10; *see also id.* at claim 17 (presenting analogous limitations [17.1], [17.2], and [17.4]).

The Petition fails to show that Gaal discloses or renders obvious these limitations as claimed. In particular, the Petition does not allege that Gaal discloses or renders obvious determining that a given one of its subframes “is a sub-optimal resource, for the uplink *and* the downlink channel” based on quality status. This is unsurprising, because as discussed in more detail below, Gaal indicates that its quality status determination to which the Petition points cannot be applied to uplink channel analysis *at all*. The Petition also fails to show that Gaal discloses or renders obvious assigning a subframe to a shared pool in response to the determination of sub-optimality.

- 1. The Petition fails to show that Gaal discloses or renders obvious limitation [10.3]: “determine, based on the quality status of the first frequency spectrum resource, that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel.”**

The Petition alleges that the determined “quality status” of limitation [10.1] is obvious because “POSITA would have understood (or at least found it obvious) that the CQI may be provided in a CSI feedback report provided by a UE and then used by the BS to determine a quality status of the subframes.” Pet. at 31. Based on the

antecedent relationship between limitations [10.1] and [10.3], the Petition must show that it would have been obvious to use CSI/CQI to determine that a subframe is sub-optimal, and moreover sub-optimal “for [both] the uplink channel *and* the downlink channel.” The Petition does not and cannot do so, for two reasons.

First, the Petition’s primary theory for limitation [10.3] simply lacks any link to the quality status or the quality status module as claimed. The Petition explains that a subframe is determined to be sub-optimal *because* it is designated as a flexible subframe, without *any* determination that the determination would be “based on the quality status [determined by the quality status module]” of that subframe. Instead, the Petition contends that the suboptimality of a flexible subframe is a given, and needs no determination based on any determined quality status (such as CQI). Specifically, the Petition states that *every* flexible subframe is suboptimal, such that once a subframe is identified as suboptimal, no determined “quality status” is necessary to determine suboptimality. *See id.* at 34 (“Gaal discloses that flexible subframes are sub-optimal relative to other frequency resources.”); *id.* at 35 (“[T]he flexible subframe is the first frequency resource and, due to the interference caused by its flexibility, is sub-optimal compared the to the fixed subframes where there ‘is generally no DL-to-UL interference or UL-to-DL interference.’”).

Thus, although the Petition alleges that a “POSITA would have understood Gaal’s disclosure of inter-cell and/or intra-cell interference would include the use of

CSI/CQI to measure such interference, or at least that it would be obvious to do so” (*id.* at 36), there would be no motivation for a POSITA to rely on CSI/CQI measurements to determine suboptimality. As the Petition readily acknowledges, a POSITA already knows which subframes are sub-optimal: the flexible ones. *Id.* at 34 (“Gaal discloses that flexible subframes are sub-optimal relative to other frequency spectrum resources.”). A POSITA designing a system in view of Gaal’s teachings would not waste design time and processing power to verify this fact by analyzing the CSI/CQI metrics reported for those flexible subframes.⁴

Second, even assuming that CSI/CQI—the “quality status” under the Petition’s theory—would be used to determine sub-optimality for a subframe, there is no allegation or evidence that the CQI would be used to determine that any subframe, much less a flexible subframe in particular, “is a suboptimal resource, *for the uplink channel and the downlink channel*” as required by limitation [10.3]. *See*

⁴ Tellingly, the Petition never alleges that any quality-status-based determination of sub-optimality of subframes would be used for any purpose. *See, e.g.*, Pet. at 37-39 (the Petition’s analysis of [10.4], failing to allege or explain that any determination of sub-optimality would affect system operation in any manner). Without a ***purpose*** for this quality-status-based suboptimality determination, a POSITA would have had no motivation to create it.

id. at 36-37 (failing to discuss any determination as to both uplink and downlink being made based on a determined quality status). To the contrary, Gaal teaches that CSI/CQI is “useless” for the uplink channel. Ex. 1004 ¶ [0085].

Indeed, the Petition’s only evidence that CSI/CQI could be used to make a determination of quality regarding either uplink *or* downlink is in reference to the ’361 Patent itself. *See* Pet. at 36-37 (quoting Ex. 1001 at 9:8-11, which states that “high CQI... may indicate that the subcarrier is well-suited for a downlink channel”).⁵ But even this disclosure relates to CQI only being used to determine

⁵ The Petition separately quotes Gaal, Ex. 1004 ¶ [0012], as reciting: “determine whether a current flexible subframe is for either uplink or downlink communications, and perform... channel measurement... based on the determination.” Pet. at 37. But this does not say that optimality of a flexible subframe for both uplink and downlink is determined based on a channel measurement. Rather, it states an entirely different concept: the ***channel measurement is based on a determination of whether the flexible subframe is uplink or downlink***. In other words, Gaal’s disclosure differs from the ’361 Patent’s claims in that in Gaal, the *channel measurement* is based on the *uplink/downlink determination*, rather than what is recited in the ’361 Patent where a *determination of suboptimality for both*

suitability of a resource for the **downlink channel**. The Petition presents no evidence that CQI even *could* be used (much less *would be obvious to use*) in evaluating suitability for an **uplink channel**. The '361 Patent itself discloses that CQI would *not* be used to evaluate uplink suitability, but instead a different status metric of RIP (or received interference power) would be used for this purpose. *See* Ex. 1001 at 9:8-16 (explaining that “high CQI... may indicate that the subcarrier is well-suited for a downlink channel,” and “low RIP... may indicate that the subcarrier is well-suited for an uplink channel”)).

The Petition’s allegation that “a POSITA would have also understood that the BS would have made a determination as to which resources are sub-optimal when determining which resources to use as flexible subframes” (*id.* at 37) does nothing to remedy this deficiency of Ground 1. As an initial matter, as noted above, the claims require determining that a resource is suboptimal, “for the uplink channel **and** the downlink channel.” In other words, a sub-optimality determination is not sufficient unless it is a determination that the resource “is a sub-optimal resource” for **both** uplink and downlink channels. However, the Petition never alleges that any suboptimality determination would, in fact, be “for the uplink channel **and** the

uplink and downlink is based on a determined quality status (such as the result of a channel measurement).

downlink channel.”

And Gaal does not disclose or render obvious any quality-status-based determination “for the uplink channel” as claimed. The claims, specifically limitation [10.3], require that the determination be made “based on the quality status,” which is determined in limitation [10.1]. The Petition’s theory for that limitation maps “quality status” to “the measurement of CSI reference signals (CSI-RS) in each subframe” by a UE and the associated communication to a BS of CSI feedback, for example in the form of a Channel Quality Indicator (CQI). *Id.* at 28-30. For the theory to succeed, then, the Petition must show a “determin[ation], based on [the measurement of CSI reference signals in each subframe or associated CQI feedback], that the [subframe] is a sub-optimal resource... for the uplink channel” is disclosed or rendered obvious by Gaal. ’361 Patent at claim 10.

But Gaal itself expressly teaches that the use of CSI-RS channel measurements and associated CQI feedback is “useless” to measure anything in relation to the uplink channel. Ex. 1004 ¶ [0085] (“If the UE configures an uplink subframe for interference measurement or channel measurement, the measurement would be useless In cases where the UE is configured to monitor a subframe for CSI measurement, there may not be any CRS or CSI-RS for the UE to measure (e.g., due to the subframe being unavailable for downlink transmission, or due to the carrier being NCT, etc.), which may cause CSI measurement and reporting issues.”).

Accordingly, Gaal devotes several columns to teaching techniques specifically for *avoiding* inadvertent mismeasurements of the uplink channel using CSI-RS and CQI techniques—for example, by the UE refraining from making the CSI measurements or declining to transmit the corresponding CQI reports, or by the BS discarding or ignoring CQI reports associated with the uplink channel. *See* Ex. 1004 ¶ [0087] (“In aspects, the flexible sub-frame may not be configured for the UE to perform any measurements.”); *id.* ¶ [0093] (“According to certain aspects, upon determining that the flexible subframe is an UL subframe, the UE may skip the subframe for interference and/or channel measurement.”); *id.* ¶ [0095] (“If the UE determines a subframe to be an uplink flexible subframe, the UE may omit CSI reporting for that flexible subframe. This approach may result in some saving in uplink overhead. Alternatively, if the UE determines a flexible subframe to be for uplink, the UE may still report CSI for the flexible subframe, but may report a predetermined value (e.g., out-of-range (OOR) or 0).”); *id.* ¶ [0096] (“In aspects, the [BS] can determine whether a report is based on a downlink or uplink subframe. As a result, the [BS] may discard reports by the UE that are measured based on uplink subframes.”); *id.* at ¶ [0101] (“At 806, the UE may perform at least one of channel measurement, interference measurement, or channel state reporting based on the determination. In aspects, if the flexible subframe is determined to be for uplink, the UE may skip interference measurement and/or channel state information (CSI)

measurement filtering for that subframe.”); *id.* ¶ [0110] (“[T]he BS may process the CSI feedback based on the determination [whether a current flexible subframe is for either uplink or downlink communications]. For example, the BS may only process CSI feedback for the current flexible subframe if the current flexible subframe is for downlink communications.”).

The Petition does not and cannot show why a POSITA would be motivated to use CSI or CQI measurements to determine sub-optimality for the uplink channel in the face of Gaal’s teachings. Furthermore, the portions of Gaal to which the Petition cites in support of its allegation that “the BS would have made a determination as to which resources are sub-optimal when determining which resources to use as flexible subframes” do not even support that allegation. *See* Pet. at 37 (quoting Ex. 1004 at Abstract, ¶¶ [0009]-[0011]).

For example, “determining whether a current flexible subframe is for either uplink or downlink communications” (Ex. 1004 at Abstract) simply relates to determining whether subframe that has *already* been designated as “flexible” should be used to transmit on the uplink or downlink channel; this quotation does not even relate to a determination of “which resources to use as flexible subframes” as the Petition alleges. *See* Pet. at 37. And while Gaal discloses that some aspect of the system would necessarily determine *which* subframes should be treated as “flexible” (*see, e.g.*, Ex. 1004 at Abstract (“identifying, within a set of subframes, one or more

flexible subframes”); *id.* ¶ [0009] (same); *id.* ¶ [0010] (same); *id.* ¶ [0011] (same)), that disclosure does **not** teach that the assignment of subframes to the “flexible” status would involve any determination of suboptimality. Indeed, the Petition’s implication to this effect is contradicted by the Petition’s admission (in alleging a motivation to combine with Khoryaev in Ground 2) that “Gaal does not specifically provide **any** criteria for designating a subframe as flexible.” Pet. at 62.

Other than inapposite citations to the Gaal and the ’361 Patent itself, the only other alleged support for the idea that Gaal discloses or renders obvious **any** determination that flexible subframes are suboptimal is the expert declaration accompanying the Petition. *See id.* 36-37 (citing Ex. 1003 ¶¶ 165, 169-171). But the cited portions of the declaration merely contain the theory that flexible subframes are suboptimal **because** they are flexible (Ex. 1003 ¶ 165) (such that no measurement would be needed to **determine** whether flexible subframes are suboptimal), as well as a recitation of Gaal’s disclosure of CSI/CQI measurements (*id.* ¶¶ 169-170) and an assertion that those measurements could be used to compare the quality of two resource blocks. The declaration provides no explanation of why a **determination** of suboptimality based on a quality status would be obvious in view of Gaal, particularly in view of the Petition’s contention that “Gaal discloses that flexible subframes are suboptimal relative to other frequency resources.” Pet. at 34. The declaration never answers the question: if suboptimality of flexible subframes is a

known fact, disclosed in Gaal, *why* would a POSITA have been motivated to independently measure and confirm such a fact?

Nor does that declaration explain how a comparison of two CQI values would result in a determination that “the first frequency spectrum resource is a sub-optimal resource, for the uplink channel *and* the downlink channel.” In fact, the most relevant discussion in the declaration on this point is paragraph 172, reproduced below:

172. Using the CQI to rank resources is also how the 361 Patent describes the determination of a sub-optimal resource. “For example, in some embodiments, subcarriers with high CQI, which may indicate that the subcarrier is well-suited for a downlink channel, may be assigned” Ex. 1001, 9:8-11. “In such embodiments, the assigned subcarriers may be ranked in order of suitability.” Ex. 1001, 9:14-16.

Ex. 1003 ¶ 172. That paragraph, however, *undermines* any conclusion that CQI would be used for a determination of suboptimality for both uplink and downlink channels because it cites to a portion of the ’361 Patent that teaches using CQI *only* to determine suitability for the downlink channel, and teaches using a *different* metric (received interference power / RIP) to evaluate suitability for the uplink channel. *See* Ex. 1001 at 9:8-14 (noting that a “high *CQI*... may indicate that the subcarrier is well-suited for a *downlink* channel,” whereas “low *RIP*... may indicate that the subcarrier is well-suited for an *uplink* channel”).

Accordingly, the Petition fails to show that Gaal discloses or renders obvious limitation [10.3].

2. **The Petition fails to show that Gaal discloses or renders obvious limitation [10.4]: “in response to the determination that the first frequency spectrum resource is the sub-optimal resource, assign the first frequency spectrum resource to a shared resource pool.”**

The Petition’s Ground 1 additionally fails because it presents no evidence or allegation that a subframe is designated as flexible, and thus assigned to a shared resource pool as claimed, on the basis of any determination that it is suboptimal as to both uplink and downlink as required by limitation [10.4].

By way of background, limitation [10.4] recites “in response to *the determination* that the first frequency spectrum resource is the sub-optimal resource, assign the first frequency resource to a shared resource pool.” Importantly, limitation [10.4]’s recitation of “the determination” derives antecedent basis from limitation [10.3]’s recitation of a “determin[ation], based on the quality status of the first frequency spectrum resource, that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel, relative to other frequency spectrum resources.” Thus, limitation [10.4]’s assignment of the first frequency resource to a shared resource pool must be in response to the determination that that resource is suboptimal for both the uplink and downlink

channels (and which determination is based on the determined quality status recited in limitation [10.1]). The Petition’s Ground 1 theory fails with respect to limitation [10.4] for two independent reasons.

First, the Petition’s Ground 1 alleges that the suboptimality determination is a **result** of particular subframes’ assignment to the shared resource pool (*i.e.*, their status as “flexible subframes”), not that the subframes’ assignment to the shared resource pool is made **in response** to the determination that the subframe is suboptimal as claimed. *See* Pet. at 35 (“[T]he flexible subframe is the first frequency resource and, due to the interference caused by its flexibility, is sub-optimal compared to the fixed subframes.”). Indeed, the Petition acknowledges that a theory in which “a fixed frame... is converted to a flexible frame based on interference measurements” is not the Ground 1 theory, but is an “alternative” theory that is “discussed ... in Ground 2.” *Id.* at 36.

The Petition contains no suggestion that Gaal assigns a subframe as “flexible” in response to any determination whatsoever. In fact, the Petition expressly concedes in Ground 2 that “Gaal does not specifically provide **any** criteria for designating a subframe as flexible.” *Id.* at 62. And Petitioners could not have plausibly argued otherwise. In fact, Gaal teaches performing or processing quality measurements **based** on the identification of a subframe as flexible—the opposite of what the Petition’s claim mapping would require. Gaal discloses that identifying flexible

frames is the *first* step of the process for both UE and BS, not responsive to any determination. Ex. 1003 ¶ [0099] (“Operations 800 [for a UE] may *begin ... by identifying*, within a set of subframes, one or more flexible subframes...”); *id.* ¶ [0107] (same for BS). Next, Gaal teaches determining whether a flexible subframe is currently assigned to uplink or downlink. *Id.* ¶ [0100] (for UE); *id.* ¶ [0108] (for BS). The channel measurements and interference measurements that correspond to “quality status” in the Petition’s theory are then performed and transmitted by the UE “*based on* the determination” of whether a flexible subframe is uplink or downlink, for example by skipping those measurements “if the flexible subframe is determined to be for uplink.” *Id.* ¶ 101. Likewise for a BS, Gaal teaches that CQI measurements received from a UE corresponding to an uplink subframe should be discarded. *Id.* ¶ [0110].

This causal sequence, in which the assignment of a frame as fixed or flexible informs the quality measurement, rather than the other way around as the Petition’s theory would require, follows from Gaal’s teaching that a UE’s channel measurements and interference measurements “would be useless” if performed on an uplink subframe. *Id.* ¶ [0085].

Second, even if the Petition counterfactually *did* provide evidence or argument that Gaal’s alleged assignment to the shared resource pool (i.e., assignment of a subframe to be a flexible subframe) would be in response to *some* suboptimality

determination, the Petition would still provide no evidence or argument that assignment of a subframe to the shared resource pool is in response to a determination that that subframe is suboptimal “for the uplink channel *and* the downlink channel” as claimed. Rather, as noted above, the alleged determination of suboptimality is not based on a determined quality status that results in a determination of suboptimality for both the uplink and downlink channels as required by limitation [10.3] (as opposed to just a generalized determination of suboptimality not specifically tied to uplink or downlink that the Petition’s discussion of using CSI to determine sub-optimality addresses).

3. The Petition fails to show that Gaal discloses or renders obvious limitations [17.2] and [17.4].

The Petition’s theories for limitations [17.2] and [17.4] are entirely based on its theories for limitations [10.3] and [10.4], respectively, and fail for the same reasons. *See* Pet. at 51, 55.

B. The Petition’s Ground 2 theory fails.

The Petition’s Ground 2 theory differs from Ground 1 by combining Gaal with Khoryaev and alleging that the combination would motivate “that a subframe can be allocated from fixed to flexible in order to mitigate measured interference for that subframe.” Pet. at 58. Ground 2 differs from Ground 1 only as to limitations [10.3], [10.4], [17.2], and [17.4]. *Id.* For example, Ground 2 does not contain any

contentions regarding the determination of quality status claimed in limitations [10.1] and [17.1]; therefore, Ground 2 necessarily relies on the same “quality status” as Ground 1. *See id.* at 57-69.

As with the Petition’s Ground 1 theory, for the Petition’s Ground 2 there is no allegation or evidence that the Petition’s combination would “determine” that a subframe “is a suboptimal resource, *for the uplink channel **and** the downlink channel*” as required by limitations [10.3] and [17.2], and then “in response to” that determination of suboptimality as to both the uplink and downlink channels, “assign the first frequency spectrum resource to a shared resource pool” as required by limitations [10.4] and [17.4]. Ground 2 fails for two independently sufficient reasons.

First, as with the Ground 1, the Petition’s Ground 2 theory cannot show a that a subframe is sub-optimal for the uplink channel based on the quality status as claimed. In the Petition’s Ground 1 theory, the “quality status” corresponds to CSI reference signals and CQI feedback, as discussed above. *See id.* at 28-30. Because the Petition presents no new Ground 2 theory for “quality status,” Ground 2 necessarily relies on the same CSI/CQI measurement. Ground 2 therefore suffers the same fatal flaw as discussed above: as Gaal itself expressly teaches, its CSI/CQI techniques are “useless” to measure anything in relation to the uplink channel. Ex. 1004 ¶ [0085]. Gaal’s disclosure thus strongly and directly teaches away from using

CSI/CQI to determine whether a subframe is sub-optimal for the uplink channel as claimed. For Ground 2, the Petition does not allege otherwise, and does not even attempt to show a sub-optimality determination that is based on anything but Gaal's CSI/CQI. *See* Pet. at 66 (“In the Gaal-Khoryaev combination, Gaal's use of CSI/CQI would be used to determine inter-cell interference, which Khoryaev expressly supports.”). Thus, the Petition does not and cannot show that it would have been obvious to use CSI/CQI to make any determination relevant to the uplink channel, and Ground 2 fails as to limitations [10.3]/[10.4] and [17.2]/[17.4] for the same reasons as Ground 1.

Second, even under the Petition's unsupported theory that the Gaal-Khoryaev combination would involve a “determination that a subframe is subject to inter-cell interference” in determining whether the subframe should be designated as “flexible,” the Petition does not and cannot allege that a determination would be made that a *single* subframe (the alleged “first frequency spectrum resource”), is sub-optimal both “for the uplink channel *and* the downlink channel” as required by limitations [10.3] and [17.2], or that an assignment to a shared resource pool would be made in response to such a determination as required by limitations [10.4] and [17.4]. A determination that one resource (a fixed uplink subframe) is suboptimal for the uplink channel and that *another* resource (a fixed downlink subframe) is suboptimal for the downlink channel is insufficient because the challenged claims

explicitly require determining that a *single* frequency spectrum resource is suboptimal “for the uplink channel and the downlink channel.” *See, e.g.*, limitation [10.3] (“determine... *that the first frequency spectrum resource is a sub-optimal resource, for the uplink channel and the downlink channel*, relative to other frequency spectrum resources”). The Petition commits this error.

Indeed, the Petition acknowledges that its Ground 2 theory relies on “interference measurements” of a *fixed* subframe (i.e., a subframe that is either fixedly allocated to the uplink channel or fixedly allocated to the downlink channel) in determining whether that subframe should be assigned as a flexible subframe. *See* Pet. at 36 (“In the alternative, as discussed below in Ground 2, it would have been obvious to treat a fixed frame as the ‘first frequency resource,’ which is converted to a flexible frame based on interference measurements.”); *id.* at 62 (alleging that a POSITA, “when designating a fixed subframe as flexible, would have looked to Khoryaev”). The Petition shows no motivation in either Gaal or Khoryaev to determine whether a subframe that is fixedly allocated to the uplink channel is a sub-optimal resource for the downlink channel, or vice versa—within the Petition’s theory, a fixed uplink subframe is not available to be allocated to the downlink channel, and a fixed downlink subframe is not available to be allocated to the uplink channel, so a POSITA would obviously have no reason to make an inapplicable estimation.

It follows that the Petition’s discussion of a first determination of inter-cell interference for fixed uplink subframes and *separate* discussion of a second determination of inter-cell interference for fixed downlink subframes is insufficient to meet the claim requirements. *See id.* at 59-60 (discussing determinations of interference on the uplink channel for fixed “UL macro subframes,” and determinations of interference on the downlink channel for a different set of subframes, *i.e.* fixed “DL macro subframes”); *id.* at 66 (citing Ex. 1018 at 5:59-6:5, which merely shows determining the optimality for a pico UL subframe under various conditions—*i.e.*, determining whether the subframe is optimal for the uplink channel under certain conditions).

The Petition simply identifies no evidence or analysis to the contrary, even considering the corresponding expert declaration. *See generally* Pet. at 66-69 (providing no explanation of *why* a POSITA would allegedly have viewed one determination that one resource is suboptimal for uplink, and a separate determination that a different resource is suboptimal for downlink, would constitute the claimed determination that a *single* resource is suboptimal “for the uplink channel *and* the downlink channel”); Ex. 1003 ¶¶ 264-267 (same); *see also* 37 CFR § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *Xerox Corp. v. ByteMark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (precedential)

(“Dr. Jones does not cite to any additional supporting evidence or provide any technical reasoning to support his statement. Thus, the cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.”).

Thus, the Petition’s Ground 2, which at most supports the notion that there would be a determination that a given subframe is suboptimal for the downlink channel and a separate determination that a *different* subframe is suboptimal for the uplink channel, cannot succeed.

VI. DISCRETIONARY DENIAL OF INSTITUTION IS WARRANTED.

Beyond the reasons for non-institution set forth in Section V, institution should additionally be denied under *Fintiv*. 35 U.S.C. § 314(a) gives the Board discretion to deny institution of IPR due to the advanced state of parallel district court litigation regarding the same issues. *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 19-21 (PTAB Sept. 12, 2018) (precedential) (“*NHK*”). The Board has set forth six factors for determining whether discretionary denial in light of such parallel litigation is appropriate, and in analyzing them, “takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5-6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv I*”); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 7-17 (PTAB May 13, 2020) (informative) (“*Fintiv II*”);

see also Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (dated June 21, 2022) (“Interim Discretionary Denial Memo,” Ex. 1019).

Each of these six *Fintiv* factors weigh in favor of the Board exercising its discretion to deny institution here. For Factor 1, no stay of either parallel district court litigation has been granted, and a stay of either is unlikely. For Factor 2, two district court trials (one involving Petitioners and the other involving their co-RPIs) will occur before the deadline for a final written decision in this proceeding. For Factor 3, largely due to Petitioners’ delay in filing the Petition, there will be much investment by the parties and the district court in both cases. For Factor 4, there is perfect overlap in both the claims and art at issue in this proceeding and in the district court against Petitioners, and Petitioners do not offer any stipulation in an effort to reduce this overlap. For Factor 5, Petitioners and their co-RPIs are the defendants in the parallel litigations. And for Factor 6, not only did Petitioners unduly delay in filing their Petition, filing just a day before the statutory deadline, but the Petition also fails to present a compelling challenge on the merits. Each of these factors is addressed in more detail below.

A. *Fintiv* Factor 1: The district court has not granted a stay, nor is there any evidence that a stay will be granted.

In the parallel district court proceeding involving the same challenged claims

of the '361 Patent and Petitioners ("Samsung Litigation"), the district court has not granted a stay pending IPR. Further, Petitioners have not requested such a stay, there is no indication they will request a stay, and there is no evidence that a stay will be granted.

Moreover, Petitioners list five other entities in addition to themselves as RPIs in this proceeding. Pet. at 73 (identifying "T-Mobile USA, Inc., AT&T Services Inc., AT&T Corp., AT&T Mobility LLC, and Cellco Partnership d/b/a Verizon Wireless" as RPIs (collectively, "the Carriers")). In the consolidated district court case involving the Carriers ("Carrier Litigation"), and even though the Carriers initiated IPR2024-00316 challenging the '361 Patent (Ex. 2002), the Carriers have likewise not requested a stay, and there is no evidence that a stay will be granted.

And the facts here indicate that it is unlikely that the district court would grant a stay of either litigation. In the Carrier Litigation, Patent Owner and Petitioners' co-RPIs have already exchanged infringement contentions, invalidity contentions, and claim construction disclosures; fact discovery is also well underway. Ex. 1010 at 4-5. And by the time the Board's institution decision is due in this proceeding (June 28, 2023), the Court will have held its *Markman* hearing, both fact and expert discovery will be complete, summary judgment and *Daubert* motions will have been filed, and trial will be just over three months away. *See id.* at 1, 3-4; Ex. 2001.

Thus, even if Petitioners' co-RPIs were to file a motion for a stay pending this

proceeding, it is highly unlikely Judge Gilstrap would grant a stay at this late juncture in the case. *See, e.g., TQ Delta, LLC v. CommScope Holding Co.*, No. 2:21-cv-00310-JRG, 2022 WL 16720195, at *3 (E.D. Tex. Nov. 4, 2022) (Gilstrap, J.) (denying motion to stay pending IPR where claim construction and fact discovery were completed, and expert discovery was set to soon close); *Solas OLED Ltd. v. Samsung Display Co.*, No. 2:19-cv-00152-JRG, 2020 WL 4040716, at *2 (E.D. Tex. July 17, 2020) (Gilstrap J.) (denying motion to stay pending IPR where claim construction and discovery were complete).

And any stay of the Samsung Litigation is, at best, speculative and unlikely. The '361 Patent is only one of five patents asserted in that litigation. Even if this IPR were instituted, it is unlikely that Judge Gilstrap would, for example, sever and stay the allegations concerning the '361 Patent, as “it is often most efficient to resolve the diverse allegations together in the same action instead of creating numerous distinct cases for every different accused technology, patent, or party.” *Polaris PowerLED Techs., LLC v. Samsung Elecs. Am., Inc.*, No. 2:22-cv-00469-JRG, 2024 WL 1149223, at *2-3, 6 (E.D. Tex. Mar. 15, 2024) (Gilstrap, J.) (denying motion to sever allegations concerning a patent on which IPR had been instituted and stay that portion of the case, even though the case was at an “early stage”). This is particularly true here, where the infringement allegations as to all five patents involve cellular base stations and/or user equipment that supports 3GPP 5G NR communications.

Ex. 2027 at 2. “If the Court severed the claims related to the ’[361] Patent, the parties would have to engage in duplicative damages and technical discovery for the overlapping accused products. Moreover, the Court and the parties would be burdened with the inefficiencies that result from doubling the necessary claim construction, pre-trial, and trial proceedings.” *Polaris*, 2024 WL 1149223, at *6.

Where neither district court litigation has been stayed and any stay is speculative and unlikely, allowing this IPR to proceed in parallel would be wasteful and inefficient. Factor 1 weighs against institution.

B. *Fintiv* Factor 2: Two district court trials will occur months before the deadline for a final written decision in this proceeding.

“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*.” *Fintiv I* at 9.

Here, the deadline for a final written decision in this IPR is June 28, 2025. Meanwhile, the Samsung Litigation is set for trial on May 5, 2025. *See* Ex. 1010 at 1; Pet. at 72. The timeframe set by the district court is consistent with the Federal Court Management Statistics for the Eastern District of Texas. *See* Interim Discretionary Denial Memo (Ex. 1019) at 3 & n.4 (encouraging use of these statistics in evaluating this factor). Those statistics indicate that, over the past six years, a civil case in the district was brought to trial 19.6 months after filing. Ex. 2003 (indicating

median times to trial for civil cases for the twelve-month period ending in December for 2018-2023 as 19.0, 17.8, 17.5, 23.0, 19.0, and 21.4). Here, the trial involving Petitioners is set approximately over 22 months after the case was filed. *See* Ex. 2018 at 1 (trial set for June 5, 2025); Ex. 2021 (parallel case filed June 16, 2023).

Moreover, trial in the Carrier Litigation is set approximately 21 months after the cases were filed. *See* Ex. 1010 at 1 (trial set for September 23, 2024); Exs. 2004-2006 (parallel cases filed December 15-16, 2022). And in the Carriers' petition, they "identify Samsung Electronics Co., Ltd. [as an RPI] because its products are accused of infringement in the AT&T, T-Mobile, and Verizon actions, and Samsung Electronics Co., Ltd. has been named as a defendant in the [Samsung Litigation]." Ex. 2002 at 3.

Thus, the trial in the Carrier Litigation, in which the Samsung Petitioners' products are undisputedly accused of infringement, is set to occur *over nine months* before the deadline for a final written decision in this proceeding.⁶ "A trial date about

⁶ In the event that there is joinder of this proceeding with IPR2024-00138, and even if both proceedings follow the expected schedule for the earlier-filed IPR2024-00138 without change, the final written decision would be expected on approximately June 11, 2025, which is still *over eight months* after the trial date in

eight or nine months before [the Board’s] statutory due date *weighs heavily in favor of discretionary denial.*” *Zhuhai Cosmox Battery Co. v. Ningde Ampere Tech. Ltd.*, IPR2023-00585, Paper 12 at 11-13 (PTAB Oct. 24, 2023) (“*Zhuhai*”); *see also, e.g., Samsung Elecs. Co. v. Mojo Mobility Inc.*, IPR2023-01094, Paper 11 at 8-9 (PTAB Feb. 9, 2024) (“*Mojo*”) (denying institution when trial was set *six months* before the final written decision would issue); *BOE Tech. Grp. Co. v. Element Capital Com. Co.*, IPR2023-00808, Paper 9 at 21-22 (PTAB Nov. 15, 2023) (“*BOE*”) (same); *Vector Flow, Inc. v. HID Global Corp.*, IPR2023-00353, Paper 8 at 19-20 (PTAB July 17, 2023) (“*Vector Flow*”) (same); *Roku, Inc. v. IOEngine, LLC*, IPR2022-01551, Paper 11 and 10-11 (PTAB May 5, 2023) (“*Roku*”) (same); *Int’l Bus. Machs. Corp. v. Digital Doors, Inc.*, IPR2023-00970, Paper 8 at 10-11 (PTAB Jan. 12, 2024) (denying institution where “trial would occur about *five months* before the statutory deadline).

Indeed, the Board has denied institution on account of even substantially smaller gaps between the final written decision and trial, including gaps analogous to the approximate two-month gap between the final written decision in this proceeding and the trial in the Samsung Litigation. *See, e.g., EClinicalWorks, LLC*

the Carrier Litigation. *See* Ex. 2020 at 34-38. In addition, the June 11, 2025 date is over a month after the trial date in the Samsung Litigation.

v. Decapolis LLC, IPR2022-00229, Paper 10 at 9 (PTAB Apr. 13, 2022) (“*EClinicalWorks*”) (finding this factor weighed in favor of discretionary denial and denying institution where “the beginning of the jury trial in the WDTX Cases is roughly **one or two months** before any final decision would have been due had *inter partes* review been instituted”); *Fintiv II* at 13 (finding this factor weighed in favor of discretionary denial and denying institution where the district court trial was scheduled to occur **two months** before the deadline for the Board to reach a final written decision); *NXP USA, Inc. v. Impinj, Inc.*, PGR2022-00005, Paper 17 at 9 (PTAB May 2, 2022) (“*NXP*”) (same), *reh’g denied*, Paper 20 (PTAB Aug. 25, 2022).

The Petition presents no evidence that the trials will not proceed on the set dates, which, as noted above, are consistent with the most current time-to-trial statistics for the Eastern District of Texas. Thus, “based on the evidence of record, there is no evidence to suggest that trial will be delayed.” *Nine Energy Serv. Inc. v. NCS Multistage Inc.*, IPR2020-01615, Paper 18 at 9 (Mar. 24, 2011); *see also NXP* at 9 (“We generally take courts’ trial schedules at face value absent some strong evidence to the contrary.”) (quoting *Fintiv II* at 13).

Because the trial in the Carrier Litigation (in which the Samsung Petitioners’ products are accused) is currently set to occur over nine months before, and the trial in the Samsung Litigation is currently set to occur approximately two months before, the deadline for a final written decision in this IPR, these dates are consistent with

current time-to-trial statistics, and there is no evidence that these dates may change, this factor weighs heavily against institution. *Fintiv II* at 13.

C. *Fintiv* Factor 3: By the time an institution decision is reached, there will have been extensive investment in the parallel district court litigations.

Factor 3 relates to the “amount and type of work already completed in the parallel litigation by the court and the parties *at the time of the institution decision*.” *Fintiv I* at 9. For example, “if, at the time of the institution decision, the district court has issued substantive orders related to the patent at issue in the petition,” this factor favors denial. *Id.* at 9-10. “Likewise, district court claim construction orders may indicate that the court and parties have invested sufficient time in the parallel proceeding to favor denial.” *Id.* at 10.

In the Samsung Litigation, the parties have already served both infringement and invalidity contentions, and at the time of the institution decision, fact discovery will be well underway. Ex. 2018 at 4. Indeed, fact discovery is already well underway at the time of this response, as the Petitioners and Patent Owner have already responded to 24 and 18 interrogatories, respectively. In addition, Petitioners have already produced over 13,000 documents, totaling over 675,000 pages, and Patent Owner has already produced over 1,000 documents, totaling 12,000 pages. Petitioners have also already served seven third-party subpoenas.

And in the Carrier Litigation (in which the Samsung Petitioners’ products are

accused of infringing the '361 Patent), one of the Samsung Petitioners has already produced nearly 1,000 documents in response to a subpoena to it, totaling over 30,000 pages. Moreover, in the Carrier Litigation, which is in the same district before the same district and magistrate judges as the Samsung Litigation, an order resulting from the May 2, 2024 *Markman* hearing (Ex. 2001) will likely issue prior to the June 28, 2024 deadline for the institution decision; the *Markman* decision would clearly qualify as a “substantive order.” *See Fintiv II* at 9-10. But even if the *Markman* order does not issue prior to the institution decision, the district court’s docket control order includes all deadlines, including the trial date; by the time the institution decision issues, both fact and discovery will be complete. Ex. 1010 at 3-4.

Notably, by the time of the institution decision, the Carriers will have completed their opening invalidity report, which is expected to overlap with the invalidity grounds presented in this IPR. *See infra* § VI.D. Further, under the Court’s schedule, at the deadline for the institution decision (June 28, 2024), Patent Owner will also have served its rebuttal validity expert report in the Carrier Litigation and expert discovery will have closed. *See* Ex. 1010 at 3. In addition, opening summary judgment and *Daubert* motions will have been filed, with the deadline for responsive briefs days away (July 1, 2024). *Id.* Realistically, the parties will have to begin work on those responsive briefs before receiving the institution decision, further adding to the parties’ investments under Factor 3.

All of this investment weighs strongly against institution because it ensures that this IPR cannot be an efficient alternative to district court litigation. In *Samsung Electronics Co. v. California Institute of Technology*, the Board denied institution where a parallel case was even less advanced, and for Factor 3, found that “the advanced stage of expert discovery is the most significant fact for our analysis.” IPR2023-00137, Paper 10 at 12 (PTAB May 4, 2023). “In particular, the scheduling order in the underlying litigation indicates that Petitioner should have already served its opening expert report on validity [at the time of the institution decision]. Given that the deadline for rebuttal expert reports is only days away, we can also safely assume that work pertaining to a rebuttal expert report on validity is well underway. We consider this work significant because it related to the merits of the parties’ invalidity positions.” *Id.* (citations omitted); *see also Zhuhai* at 13 (denying institution in part because opening expert reports were served before the institution decision issued); *Vector Flow* at 21 (same); *Duplo USA Corp. v. MGI Digital Tech. SA*, IPR2023-00936, Paper 8 at 17-18 (PTAB Dec. 5, 2023). The district court case will be at an even more advanced stage here, as not only will opening reports have been served, but expert discovery will be complete, and summary judgment and *Daubert* motions will have been filed. And even though the Samsung Petitioners are not parties to the Carrier Litigation, their products are undisputedly accused in that litigation and they are participating in that litigation as a third-party.

Thus, the parties (the Samsung Petitioners, the Carriers, and Patent Owner) as well as the district court will have invested significant time and resources in the district court litigation by the time the Board reaches an institution decision in this matter. This favors discretionary denial, and various panels have found this factor to favor denial even when the parallel litigation was at less advanced stage. *Fintiv I* at 10; *Fintiv II* at 13-14 (finding that “the level of investment and effort already expended on claim construction and invalidity contentions” favored denial where the parties had exchanged final contentions, a *Markman* hearing was held, the court had entered a claim construction order, and discovery had begun); *BOE* at 23-24 (denying institution in part because claim construction was complete and fact discovery was nearly completed); *Roku* at 12 (same); *Mojo* at 9 (same).

Of course, the reason that the district court litigation will be so far along at the time of institution is because petitioners unduly delayed in filing their petitions. The Samsung Petitioners allege that they were “diligent in filing this Petition less than six months after [they] w[ere] served with the complaint.” Pet. at 72. While the timing aspect of that statement may be technically true in regard to the Samsung Litigation (*compare id.* at 75-78 (dated December 18, 2023) with Ex. 2022 (Samsung defendants served June 21, 2023)), that is not the relevant inquiry here. Rather, service of one or more of the Carriers is what governs the Samsung Petitioners’ time to file an IPR petition because the Samsung Petitioners identify the Carriers as RPIs.

Pet. at 73 (identifying “T-Mobile USA, Inc., AT&T Services Inc., AT&T Corp., AT&T Mobility LLC, and Cellco Partnership d/b/a Verizon Wireless” as RPIs); 35 U.S.C. § 315(b) (“An inter partes review may not be instituted if the petition requesting the proceeding is filed *more than 1 year after the date on which the petitioner, **real party in interest**, or privy of the petitioner is served with a complaint* alleging infringement of the patent.”). Here, the first of these RPIs was served on December 19, 2022 (Ex. 2009 (proof of service of AT&T Services Inc. dated December 19, 2022); Ex. 2005 (corresponding complaint alleging AT&T Services Inc. infringes the ’361 Patent)), making the deadline for Petitioners to file the instant Petition December 19, 2023. And the instant Petition was filed December 18, 2023 (Pet. at 75-78), just *one day* before the statutory deadline. The Samsung Petitioners therefore waited until nearly the last possible minute to file their Petition.

And the Carriers likewise delayed in filing a petition challenging the same patent at issue here, filing less than a month before their statutory deadlines. *Compare* Ex. 2002 at 73-77 (dated November 30, 2023) *with* Exs. 2007-2009, 2014 (Carriers served December 19-21, 2022). The Samsung Petitioners offer no explanation for why they did not their Petition at least as early as the Carriers’ dilatory petition, and why they did not file their Petition even sooner, given the Carriers’ long delay in doing so.

The same is true for petitions that the Carriers filed on the other three patents

asserted in the parallel litigation. Ex. 2015 at 3, 49; Ex. 2016 at 2-3, 72-73; Ex. 2017 at 3, 64-67 (three other petitions filed November 22, 2023 through December 4, 2023, each also naming Petitioner Samsung Electronics Co., Ltd. as an RPI). And the Samsung Petitioners likewise exhibited the same delay in filing their petitions on these same three patents. Ex. 2023 at 75-78; Ex. 2024 at 60-62; Ex. 2025 at 45-48; Ex. 2026 at 73-76; (four petitions from Samsung on the same three other patents challenged by the Carriers, all filed December 18, 2023, one day before the statutory deadline.

In addition, in the Carrier Litigation, Patent Owner served its preliminary infringement contentions on five of the RPIs to this proceeding *over seven months before* the Petition was filed (Exs. 2010-2012), and the Carriers served their preliminary invalidity contentions *over five months before* the Petition was filed (Ex. 2013). The Board has found lack of diligence in similar circumstances. For example, in *Ericsson Inc. v. Collision Communications, Inc.*, the Board “d[id] not agree with Petitioner’s view that filing the Petition less than *nine months* after receiving infringement contentions constitutes filing the Petition promptly.” IPR2022-01233, Paper 12 at 15 (PTAB Jan. 19, 2023) (quotation marks omitted). The Board denied institution, and also noted that, like here, “Petitioner waited almost a year from inception of the [parallel] district court proceeding” to file the Petition. *Id.* Here, although the Samsung Petitioners are not parties to the Carrier Litigation,

Petitioners' co-RPIs had both infringement and invalidity contentions many months before the Petition was filed, and it is undisputed that Samsung products are at issue in the Carrier Litigation. The Samsung Petitioners offer no explanation for their delay in challenging the '361 Patent in this forum once they knew their products were accused of infringement in litigation involving their co-RPIs.

Because there has been substantial investment in the parallel proceedings by both the parties and the district court, and Petitioners unduly delayed in filing the Petition, filing only one day before the statutory deadline, Factor 3 weighs heavily against institution.

D. *Fintiv* Factor 4: There is substantial overlap between this IPR and both district court proceedings.

This factor looks at “whether all or some of the claims challenged in the petition are also at issue in district court” and whether the “petition includes the same or substantially the same claims, grounds, arguments, and evidence” as the parallel district court case. *Fintiv I* at 12-13. Here, there is complete overlap between both the challenged and asserted claims, and the same combination of prior art applied in the Petition is also relied upon at the district court.

First, the Petition challenges the same claims that are currently asserted in the Samsung Litigation. *Compare* Pet. at 2-3 (challenging claims 10-13, 15, and 17) *with* Ex. 2027 at 2; Ex. 2028 at 2 (identifying asserted claims 10-13, 15, and 17). The

same is true of the Carrier Litigation. *Compare* Ex. 2002 at 2 (challenging claims 10-13, 15, and 17) *with* Ex. 2010 at 1; Ex. 2011 at 1; Ex. 2012 at 1; Ex. 2013 at 2 (identifying asserted claims 10-13, 15, and 17); *see also* *Vector Flow* at 22 (denying institution in part because the same claims were challenged at the PTAB and asserted in litigation); *EClinicalWorks* at 12 (same).

Second, the Petition has two grounds for these claims, one based solely on Gaal and the other based on Gaal in view of Khoryaev. *See* Pet. at 2-3 (“Gaal” and “Gall, Khoryeav,” both based on “§ 103”); *id.* at 3 (indicating “Gaal” is “U.S. Patent Application Publication No. 2014/0341051A1” and “Khoryaev” is “U.S. Pat. No. 9,185,620”). Petitioners rely on these same two grounds as alleged obviousness grounds in the Samsung Litigation. Ex. 2028 at 35 (alleging that that each references charted in Exhibits E-1 through E-13 “teach or suggest every element of each of the Asserted Claims of the [’361] Patent”); *id.* at 34 (indicating that E-5 and E-7 correspond to Gaal and Khoryaev, respectively); *id.* at 37 (alleging that “a POSITA would have been motivated to combine” Gall and Khoryaev). There is also substantial overlap in the Carrier Litigation, as the Carriers rely on Gaal as a single-reference obviousness ground (Ex. 2013 at 13, 16) as well as in numerous obviousness combinations (*id.* at 18-19). There is thus substantial overlap in the prior art invalidity theories presented to the PTAB and the district court.

Further, the Samsung Petitioners fail to offer any stipulation concerning what prior art they will rely upon in the district court litigation, let alone a *Sotera* stipulation. It is hard to imagine how this proceeding could be an efficient option to the district court litigation when Petitioners intend to assert the ***exact same grounds*** in the district court, as well as the same art in other purported invalidity grounds, even if this Petition is instituted. *See, e.g., Code200, UAB v. Luminati Networks Ltd.*, IPR2020-01506, Paper 10 at 11-12 (PTAB Feb. 16, 2021) (denying institution, and finding that Factor 4 weighs in favor of doing so where “the overlap in issues between the two proceedings is substantial” and there were not “any stipulations filed or actions taken by Petitioner to reduce overlap between the proceedings”); *Apcon, Inc. v. Gigamon Inc.*, IPR2020-01579, Paper 9 at 26 (PTAB Mar. 16, 2021) (denying institution where “the art appears substantially the same, and no stipulation has been filed by Petitioner agreeing not to assert the same art”).

The Carrier’s petition in IPR2024-00138 likewise does not provide an efficient alternative to litigation. The Carriers’ limited *Sand Revolution* stipulation that, “if instituted, Petitioners stipulate that they will not pursue invalidity against the asserted claims in the district court using the specific combination of prior art references set forth in Ground 1 and 2 presented in this Petition for the purposes of establishing obviousness (*i.e.*, obviousness in light of Gaal and obviousness in light of Gaal in view of Khoryaev)” (Ex. 2002 at 72) does not alleviate inefficiency

concerns. *See* Interim Discretionary Denial Memo (Ex. 1019) at 3; *see also, e.g., 3Shape Trios A/S v. Densys Ltd.*, IPR2021-00236, Paper 12 at 11-12 (PTAB May 20, 2021) (denying institution, rejecting a similar stipulation because it “is too narrow to clarify that it will not pursue any ground that could have reasonably been raised in an IPR,” and noting that “a broader stipulation might better address concerns regarding duplicative efforts and potentially conflicting decisions”). With this *Sand Revolution* stipulation, as opposed to a *Sotera* stipulation, the Carriers are agreeing to far less than what would be the natural consequences of the case proceeding to a final written decision. *See, e.g., Cal. Inst. of Tech. v. Broadcom Ltd.*, 25 F.4th 976, 991 (Fed. Cir. 2022) (“overrul[ing] *Shaw* and clarify[ing] that estoppel applies not just to claims and grounds asserted in the petition and instituted for consideration by the Board, but to all grounds not stated in the petition but which reasonably could have been asserted against the claims included in the petition”).

And this stipulation is especially meaningless, where the Carriers intend to rely on (1) Gaal as an anticipatory reference (Ex. 1013 at 14, 17); and (2) apply Gaal in at least four obviousness combinations (*id.* at 18-19). *See NXP* at 12 (finding the fact that the same art was asserted in both proceedings weighed in favor of discretionary denial).

Thus, even if the Samsung Petitioners would offer a similar stipulation, that stipulation would fail to resolve efficiency concerns for the same reasons discussed

above in relation to the Carriers’ stipulation. Indeed, numerous exemplary combinations in the Samsung Petitioners’ invalidity contentions involve the references relied upon in the Petition’s sole ground. *See* Ex. 2028 at 45-46. The invalidity contentions also identify both Gaal and Khoryaev as allegedly anticipatory references (*id.* at 33-35), and also purport to rely on the issued version of Gaal (*id.* at 16 (“U.S. Patent No. 9,713,026 (‘Gaal- 026’)”)). *See Vector Flow* at 22 (finding a substantial overlap in grounds where, in the parallel litigation, petitioner relied on the issued version of the application it relied on in the IPR as well as other references with similar disclosures).

In short, the Petition challenges the same claims asserted in the parallel litigation, and uses the same art as relied upon in the district court. The Samsung Petitioners also fail to offer any stipulation limiting the prior art or invalidity grounds on which they will rely in district court litigation. This raises substantial “concerns of inefficiency and the possibility of conflicting decisions,” weighing against institution. *See Fintiv I* at 12.

E. *Fintiv* Factor 5: Petitioners and their co-RPIs are the defendants in the district court litigation.

Petitioners are the defendants in the Samsung Litigation, and Petitioners’ co-RPIs are defendants in the Carrier Litigation. “Because the petitioner and the defendant in the parallel proceeding are the same party, this factor weighs in favor

of discretionary denial.” *Fintiv II* at 15.

F. *Fintiv* Factor 6: Other circumstances weigh strongly against institution, including the weakness of the Petition and Petitioners’ delay.

This factor looks at “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv I* at 9. This factor weighs heavily against institution for two reasons. *First*, contrary to Petitioners’ assertion, the merits of the Petition suffer from significant weaknesses and gaps in proof, as discussed above. The Petition fails to show that either of its sole obviousness grounds discloses or renders obvious any of the challenged claims. *See supra* § V. Thus, the Petition fails to present a “compelling unpatentability challenge” (*see* Interim Discretionary Denial Memo (Ex. 1019) at 2-5) and fails to establish a reasonable likelihood of success. *Second*, there is evidence that Petitioners unduly delayed in filing the Petition, filing just *one day* before the statutory deadline, as discussed above for Factor 3, and Petitioners offer no explanation for their delay. *See supra* § VI.C.

* * *

Each of the six *Fintiv* factors weigh in favor of the Board exercising its discretion to deny institution.

VII. CONCLUSION

Patent Owner respectfully requests that the Board deny institution for either or both of two independent reasons. First, each of the Petition’s grounds fails on the

merits. Second, the Board should exercise its discretion under Section 314(a) to deny institution because of the status of the co-pending lawsuits in light of Petitioners' delay in filing the Petition.

Date: March 28, 2024

Respectfully submitted,

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 11,656 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

Date: March 28, 2024

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on March 28, 2024, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioners:

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