UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

T-MOBILE USA, INC., AT&T SERVICES INC.,
AT&T MOBILITY LLC, AT&T CORPORATION,
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,
NOKIA OF AMERICA CORPORATION, ERICSSON INC.,
Petitioners,

v.

COBBLESTONE WIRELESS LLC,
Patent Owner.

IPR2024-00138
Patent 10,368,361

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Ex. 2002	*Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC*, IPR2024-00316, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023)
Ex. 2003	Federal Court Management Statistics for the Eastern District of Texas through December 2023, *available at* https://www.uscourts.gov/statistics-reports/federal-court-management-statistics-december-2023
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Ex. 2014	*Cobblestone Wireless, LLC v. T-Mobile USA, Inc.*, No. 2:22-cv-00477, Dkt. No. 11 (Unopposed Application for Extension of Time to Answer Complaint) (E.D. Tex. Dec. 22, 2022)
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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. 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*** 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 thehe 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 litigation involving the same patent, the same parties, the same claims, and the Petition's lead reference. The district court case involving Petitioners is at an advanced stage, and the parties and the district court have already invested significant time and resources in that case. Indeed, by the time the Board reaches an institution decision in this proceeding, fact discovery will be complete and expert reports, including Petitioners' and Patent Owner's expert reports addressing validity issues, will have been served. And the district court trial also is set to take place *more than eight months before* the deadline for any final written decision in this proceeding. Petition also fails to offer a *Sotera* stipulation here. 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 resource***[1] and a second frequency spectrum resource …;
> >
> > [10.2] a processor coupled to the quality status module and 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 <u>and</u> the downlink channel***, relative to

[1] All emphases added unless otherwise noted.

> 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 <u>and</u> 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 <u>respective</u> quality status of a first frequency spectrum resource <u>and a second frequency spectrum resource, wherein each of the first frequency spectrum resource and the second frequency spectrum resource are</u> 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 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 (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 15-16. Patent Owner agrees with this notion. Patent Owner also notes that the Petition provides a construction for "quality status module." *Id.* at 16-17. 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 17-18. 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 <u>and</u> 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].[2]

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***

[2] 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.

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.[3]

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 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].

[3] 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.

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").[4] But even this disclosure relates to CQI only being used to determine 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

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

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 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 the parallel district court litigation has been granted, and a stay is unlikely given the advanced stage of the case. For Factor 2, the district court trial will occur over eight months 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—by the time the Board issues its institution decision, claim construction and fact discovery will be complete, and both opening and rebuttal expert reports (including Petitioners' invalidity report and Patent Owner's validity report) will have been served. For Factor 4, there is perfect overlap in both the claims and art at issue in this proceeding and in the district court; Petitioners' limited *Sand Revolution* stipulation does little to quell the concerns of inefficiency and inconsistent rulings. For Factor 5, Petitioners are the defendants and intervenors in the parallel litigation. And for Factor 6, not only did Petitioners unduly delay in filing their Petition, 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 (T-Mobile, AT&T, and Verizon are defendants, and Nokia and Ericsson are intervenors), the district court has not granted a stay pending IPR. Further, Petitioners have not requested such 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 pending IPR, given the late stage of litigation. The parties 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 11, 2023), the Court will have held its *Markman* hearing, fact discovery will be complete, the parties will have exchanged opening and rebuttal expert reports, and trial will be less than four months away. *See id.* at 1, 3-4; Ex. 2001. And trial is currently set for September 23, 2024—over eight months before the earliest deadline for a final written decision in this IPR (June 11, 2025). Ex. 1010 at 1; *see infra* § VI.B.

Thus, even if Petitioners 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).

Where the district court litigation has not 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: The district court trial will occur over eight 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 11, 2025, which may be extended to February 11, 2026, for good cause or in the case of joinder.[5] 37 C.F.R. § 42.100(c). Meanwhile, the district court litigation is set for trial

[5] Joinder seems very likely if this Petition is instituted, given that Samsung has already filed a "copycat" Petition with a "substantively identical" expert declaration

on September 23, 2024. *See* Ex. 1010 at 1; Pet. at 71. 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, trial 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).

Thus, the district court trial is set to occur ***over eight months*** before the deadline for a final written decision, and possibly over a year before the deadline if extended. "A trial date about ***eight or nine months*** before [the Board's] statutory due date ***weighs heavily in favor of discretionary denial***." *Zhuhai Cosmx Battery Co. v. Ningde Amperex Tech. Ltd.*, IPR2023-00585, Paper 12 at 11-13 (PTAB Oct. 24, 2023) (emphases added) ("*Zhuhai*"); *see also, e.g.*, *Samsung Elecs. Co. v. Mojo Mobility Inc.*, IPR2023-01094, Paper 11 at 8-9 (PTAB Feb. 9, 2024) ("*Mojo*")

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from the same expert, and further indicated it intends to move for joinder if this Petition is instituted. Ex. 2002 at 1.

(denying institution when trial was set ***six months*** before the final written decision would issue); *BOE Tech. Grp. Co. v. Element Capital Commerical 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. *See, e.g.*, *EClinicalWorks, LLC 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") (emphasis added); *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.

Petitioner implies that the Board should ignore this set trial date "[b]ecause much can change in nine months." Pet. at 71.[6] But the Petition presents no evidence that trial will not proceed on the set date, which, as noted above, is consistent with the most current time-to-trial statistics for the Eastern District of Texas. The case the Petition cites on this point (*id.*) is distinguishable. In *Dish Network LLC v. Broadband iTV, Inc.*, a motion to transfer was pending, which if granted the trial date would inevitably be moved; there was also only a three-month time gap between the scheduled trial date and the statutory deadline for the final written decision, leaving little time for a new trial to be scheduled before the Board's final decision issued. IPR2020-01280, Paper 17 at 16-18 (PTAB Feb. 4, 2021) ("*Dish*") ("[W]ith trial currently scheduled for less than three months before the due date for the final written decision and a motion to transfer pending, there is at least some persuasive evidence."). *Dish*, thus, stands in stark contrast with the present case where there is an eight-month gap (rather than a three-month gap) and no motion to transfer

[6] The Petition also states "the trial date in the Samsung litigation is not set to begin until at least May 5, 2025." Pet. at 71. The trial date in a case with different parties is not relevant to the analysis here. Moreover, this trial date is still over a month before the expected final written decision in this proceeding. *See, e.g.*, *EClinicalWorks* at 9.

pending. Here, "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 district court trial is currently set to occur over eight months before the earliest deadline for a final written decision in this IPR, this date is consistent with current time-to-trial statistics, and there is no evidence that this date may change, this factor weighs heavily against institution. *Fintiv II* at 13.

C. *Fintiv* Factor 3: By the time an institution decision is reached, fact discovery will be complete and opening and rebuttal expert reports will have been served.

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 (emphasis added). 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.

Here, an order resulting from the May 2, 2024 *Markman* hearing (Ex. 2001) will likely issue prior to the June 11, 2024 deadline for the institution decision; the

Markman decision would clearly qualify as a "substantive order." 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, fact discovery will be complete, and the parties will have exchanged opening and rebuttal expert reports. Ex. 1010 at 3-4.

Notably, by the time of the institution decision, Petitioners 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 11, 2024), Patent Owner will also have served its rebuttal validity expert report, which is due June 3, 2024, further adding to the parties' investments under Factor 3. *See* Ex. 1010 at 3. Realistically, Patent Owner and its expert will have to begin work on the rebuttal report before receiving the institution decision, further adding to the parties' investments under Factor 3. And as the deadline to complete expert discovery is June 14, 2024 (*id.*), the parties will have either taken expert depositions or will be in the midst of preparing for them when the institution decision issues.

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 in nearly identical circumstances, 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 rebuttal reports will also likewise have been served and the close of expert discovery will be days away.

Thus, the parties and 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 than here. *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—with fact discovery and claim construction complete, and expert discovery well underway—is because Petitioners unduly delayed in filing their Petition, filing just a month before the statutory deadline. *Compare* Pet. at 75-77 (dated November 30, 2023) *with* Exs. 2007-2009, 2014 (defendants served December 19-21, 2022).

In addition, Patent Owner served its ***preliminary infringement contentions over eight months before*** the Petition was filed (Exs. 2010-2012), and Petitioners served their ***preliminary invalidity contentions over six months before*** they initiated this proceeding (Ex. 2013). The same is true for petitions that the same Petitioners filed on the other three patents asserted in the parallel litigation. Ex. 2015 at 49; Ex. 2016 at 72-73; Ex. 2017 at 64-67 (three other petitions filed November 22, 2023 through December 4, 2023). The Petition offers no explanation for Petitioners' delay, and in particular, there is no explained reason why Petitioners could not have filed this Petition at the same time as or immediately after their preliminary invalidity

contentions, which raised one of the same invalidity grounds for the same claims as challenged in the Petition. *Compare* Pet. at 2 (setting forth two grounds, "Obvious over U.S. Patent Application Publication No. 2014/0341051 A1 ('Gaal')" and "Obvious over Gall in view of U.S. Patent No. 9,185,620 ('Khoryaev')" for claims 10-13, 15, and 17) *with* Ex. 2013 at 2, 13, 16 (setting forth a single-reference obviousness theory based on Gaal for the same claims); *infra* § VI.D.

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) (emphasis added, 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.*

Because there has been substantial investment in the parallel proceedings by both the parties and the district court, and Petitioner unduly delayed in filing the Peititon, Factor 3 weighs heavily against institution.

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

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 litigation. *Compare* Pet. 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, as noted above, the Petition has two grounds, one based solely on Gaal and the other based on Gaal in view of Khoryaev. *See* Pet. at 2. Petitioners rely on Gaal as a single-reference obviousness ground in the district court litigation (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, Petitioners 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)" (Pet. 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.*, Case 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, Petitioners 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 here, where Petitioners 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 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); *see also NXP* at 12 (finding the fact that the same art was asserted in both proceedings weighed in favor of discretionary denial). And Petitioners' invalidity contentions are voluminous, such that other identified art likely contain cumulative disclosures as Gaal and Khoryaev as well. *See generally* Ex. 1013; *see also Mojo* at 13.

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. 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 are the defendants and intervenors in the district court litigation.

Petitioners are the defendants and intervenors in the parallel 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 Petitioner's 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 its sole proposed obviousness combination 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, 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 lawsuit in light of Petitioners' delay in filing the Petition.

Date: March 11, 2024

Respectfully submitted,

/Reza Mirzaie/

Reza Mirzaie, Reg. No. 69,138
Amy E. Hayden, Reg. No. 64,817
Neil A. Rubin, Reg. No. 67,030
Peter Tong, Reg. No. 74,292
RUSS, AUGUST & KABAT
12424 Wilshire Blvd., 12th Floor
Los Angeles, CA 90025
Tel.: 310-826-7474
Fax: 310-826-6991
rmirzaie@raklaw.com
ahayden@raklaw.com
nrubin@raklaw.com
ptong@raklaw.com
rak_cobblestone@raklaw.com

Counsel for Patent Owner

CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 10,482 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

Date: March 11, 2024

/Reza Mirzaie /

Reza Mirzaie, Reg. No. 69,138
Amy E. Hayden, Reg. No. 64,817
Neil A. Rubin, Reg. No. 67,030
Peter Tong, Reg. No. 74,292
RUSS, AUGUST & KABAT
12424 Wilshire Blvd., 12th Floor
Los Angeles, CA 90025
Tel.: 310-826-7474
Fax: 310-826-6991
ahayden@raklaw.com
nrubin@raklaw.com
ptong@raklaw.com
rak_cobblestone@raklaw.com

Counsel for Patent Owner

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

The undersigned hereby certifies that the above document was served on March 11, 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:

John D. Haynes (Reg. No. 44,754)
David S. Frist (Reg. No 60,511)
Michael C. Deane (Reg. No. 70,389)
Alston & Bird LLP
One Atlantic Center
1201 West Peachtree Street
Atlanta, GA 30309
Tel.: 404-881-7000
Fax: 404-881-7777
John.Haynes@alston.com
David.Frist@alston.com
Michael.Deane@alston.com
A&BCobblestone@alston.com

Date: March 11, 2024

/Reza Mirzaie/

Reza Mirzaie, Reg. No. 69,138
Amy E. Hayden, Reg. No. 64,817
Neil A. Rubin, Reg. No. 67,030
Peter Tong, Reg. No. 74,292
RUSS, AUGUST & KABAT
12424 Wilshire Blvd., 12th Floor
Los Angeles, CA 90025
Tel.: 310-826-7474
Fax: 310-826-6991
ahayden@raklaw.com
nrubin@raklaw.com
ptong@raklaw.com
rak_cobblestone@raklaw.com

Counsel for Patent Owner