

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

COBBLESTONE WIRELESS LLC,
Patent Owner.

Case IPR2024-00319
Patent 8,891,347 B2

PATENT OWNER'S PRELIMINARY RESPONSE

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2002	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00136, Paper 1 (IPR Petition) (PTAB Dec. 4, 2023) [IPR2024-00136-Petition]
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 [Trial-Statistics]
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) [T-Mobile-Complaint]
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2006	<i>Cobblestone Wireless, LLC v. Cellco P'ship d/b/a Verizon Wireless</i> , No. 2:22-cv-00478, Dkt. No. 1 (Complaint for Patent Infringement) (E.D. Tex. Dec. 16, 2022) [Verizon-Complaint]
2007	<i>Cobblestone Wireless, LLC v. Cellco P'ship d/b/a Verizon Wireless</i> , No. 2:22-cv-00478, Dkt. No. 11 (Proof of Service of Summons to Cellco Partnership d/b/a/ Verizon Wireless) (E.D. Tex. Dec. 23, 2022) [Verizon-Proof-of-Service]
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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) [T-Mobile-Infringement-Contentions]
2013	<i>Cobblestone Wireless, LLC v. Samsung Electronics Co., LTD et al.</i> , No. 2:22-cv-00285, Defendant Samsung Electronics Co. LTD. and Samsung Electronics America, Inc.'s Preliminary Invalidity Contentions for U.S. Patent No. 8,891,347 (E.D. Tex., served Dec. 27, 2023) [Invalidity-Contentions]
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) [T-Mobile-Ext]
2015	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00135, Paper 1 (IPR Petition) (PTAB Nov. 22, 2023) [IPR2024-00135-Petition]
2016	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00137, Paper 1 (IPR Petition) (PTAB Dec. 4, 2023) [IPR2024-00137-Petition]
2017	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00138, Paper 1 (IPR Petition) (PTAB Nov. 30, 2023) [IPR2024-00138-Petition]
2018	Reserved
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) [Samsung-Docket-Control-Order]
2020	<i>T-Mobile USA, Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00136, Paper 12 (POPR) (PTAB Mar. 11, 2024) [IPR2024-00136-POPR]
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) [Samsung-Complaint]

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2023	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00315, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023) [IPR2024-00315-Petition]
2024	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00316, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023) [IPR2024-00316-Petition]
2025	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00317, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023) [IPR2024-00317-Petition]
2026	<i>Samsung Elecs. Am., Inc. et al. v. Cobblestone Wireless, LLC</i> , IPR2024-00318, Paper 3 (IPR Petition) (PTAB Dec. 18, 2023) [IPR2024-00318-Petition]
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) [Infringement-Contentions]
2028	Reserved
2029	<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. 8,891,347 (E.D. Tex., served May 12, 2023) [Carrier-Invalidity-Contentions]

I. INTRODUCTION

The Petition should be denied institution for multiple independently sufficient reasons. The Petition should be rejected because it, in contravention of the Board's caselaw, exclusively relies on interpretations of claim limitations that Petitioners insist are dead wrong. *See* Section II.A. But, even if Petitioners could proceed in this fashion, they fail to show that any of the challenged claims are obvious under any ground. *See* Sections II.B-C.

Here, however, the Board should not even reach the merits. Petitioners and their self-professed real parties-in-interest in effect seek not just a second bite at the apple, but four separate bites. This is one of two IPRs challenging the '347 patent. The other (IPR2024-00136) is brought by Petitioners' self-professed real parties-in-interest. That other IPR, moreover, includes an *identical* first ground (over Sesia) to the first ground here. Thus, Petitioners and their RPIs seek two IPR trials and, later, two district court trials to raise the very same validity defenses. This is the very sort of harassment the AIA was meant to prevent and this Petition should be denied under *Fintiv*. *See* Section III.A. At the very least, Petitioners and their RPIs should not be granted two parallel IPRs challenging the same claims of the same patent under the same ground. *See* Section III.B.

II. PETITIONERS FAIL TO SHOW A REASONABLE LIKELIHOOD OF PREVAILING AS TO ANY CHALLENGED CLAIMS.

Petitioners fail to show a reasonable likelihood of success with respect to any challenged claims. The Petition exclusively relies upon constructions that it expressly contends are wrong without providing any alternative analysis based on constructions that Petitioners contend are correct. Section II.A, *infra*. Board law confirms that a petitioner cannot meet its institution burden by presenting grounds exclusively under constructions it contends are wrong. If that were not enough, both of Petitioners' grounds also fail to disclose various specific limitations. Sections II.B-C, *infra*.

A. Institution Should Be Denied As To All Grounds Because The Petition Exclusively Relies Upon Constructions It Expressly Disagrees With.

Institution should be denied because the Petition—by Petitioners' own admission—rests on an infirm foundation. Before the Board, it has become commonplace for a petitioner to explain why a claim is invalid under alternative claim constructions, *e.g.*, its proposed construction and a construction proffered by the patent owner. Petitioners, however, have not done that here. Here, Petitioners raise two invalidity grounds that they state solely and exclusively relies upon Patent Owner's alleged claim construction positions. What is more, Petitioners make clear *in the Petition, that they believe the sole constructions they rely upon are dead wrong*. As common sense, the Board's caselaw, and the Office's policy

make clear, a petitioner cannot demonstrate a reasonable likelihood of prevailing based upon constructions it expressly disagrees with in its petition.

But even if, *arguendo*, petitioners could exclusively rely on constructions they say in the petition are wrong, Petitioners' approach here must be rejected for, at least as to limitation 1.3, Petitioners rely upon a claim interpretation that ***no one*** agrees with. Patent Owner's actual claim construction positions are different from the strawman construction that Petitioners have relied upon. Thus, as to limitation 1.3, even Petitioners proffered justification for its approach is without basis.

Petitioners contend that “[f]or purposes of this Petition, it is important to consider Patent Owner’s apparent interpretation of certain terms in the co-pending district court litigations.”¹ Pet., 10. Petitioners make clear that they believe Patent Owner’s “apparent constructions” are “broad[er]” than the plain and ordinary meaning. Pet., 10 (“terms not expressly construed herein should be given their ordinary and customary meaning”), (“Patent Owner’s infringement contentions indicate that ***Patent Owner has taken a broad interpretation of the claims***”).

Specifically, Petitioners rely upon two, in their view, errant constructions. For the limitation 1.5, “predistorting a second signal at the transmitter in a time domain, a frequency domain, and a spatial domain,” Petitioners point to Patent

¹ All emphasis in this POPR is added unless otherwise noted.

Owner's reliance upon beamforming, but Petitioners make clear that "[b]eamforming and the selection of time and frequency resources jointly or individually are **not predistortion** ... , but, under Patent Owner's interpretation of this limitation, the claim is **broad enough** to capture resource selection and beamforming a wireless signal." Pet., 12-13. Similarly, Petitioners reiterate their view that Patent Owner's alleged interpretation of "path parameter information" (in limitation 1.3) is overly broad. *Id.*, 11 ("In the co-pending district court litigation, **Patent Owner interprets 'path parameter information' broadly** to capture any channel state information feedback ..."). These limitations are present in each and every claim-at-issue. Ex. 1001 ['347] limitations 1.3, 1.5, 8.4, 8.5, 15.3.2, 15.3.4, 19.3.2, and 19.3.4.

Notably, Petitioners' contention regarding Patent Owner's interpretation of limitation 1.3 is not even correct, and Petitioners instead attack a strawman. Petitioners contend that "[i]n the co-pending district court litigation, Patent Owner interprets 'path parameter information' broadly to capture **any** channel state information feedback ..." (limitation 1.3). Pet., 11. Not so. Patent Owner does not contend that limitation 1.3 is satisfied by "**any** channel state information feedback." Rather, as the limitation makes clear, the "channel estimation" must be "based on the first signal to obtain path parameter information of **the first propagation path**," *i.e.*, "path parameter information" for a **specific** propagation

path (“the first propagation path”). And this is fully consistent with Patent Owner’s infringement contentions, which explain that the infringing products obtain path parameter information for a “narrow-beam” that discloses a *single* propagation path. Ex. 1015 [Infringement-Contentions] 5-7.

Thus, the Petition solely relies upon, in Petitioners’ view, dead wrong interpretations of two claim limitations present in every claim-at-issue. Importantly, Petitioners do not demonstrate that the claims are obvious under any understanding of the claims that they agree with. Rather, Petitioners make clear, again and again, that their invalidity arguments arise under Patent Owner’s allegedly overly broad and incorrect interpretation of the claims with respect to both Grounds of the Petition. *See, e.g.,* Pet., 2 (“Thus the Challenged Claims are unpatentable over Sesia and over Forenza *in view of the Patent Owner’s apparent interpretation of the claims.*”); 35 (“Based on Sesia’s disclosure, a POSITA would understand, *under Patent Owner’s apparent interpretation of the claims*, that the information that is obtained from performing channel estimation on a reference signal and subsequently provided to the eNodeB by the UE as either implicit or explicit feedback corresponds with the claimed ‘path parameter information.’”); 39 (“Sesia discloses and/or renders obvious [limitation 1.5] *in light of Patent Owner’s apparent interpretation of this limitation* based on its infringement contentions in the related District Court proceedings.”); 43 (“Thus, Sesia discloses

and/or renders obvious [limitation 1.5] as recited in Claim 1 ***under Patent Owner’s apparent interpretation of the claims*** which is broad enough to capture beamforming a wireless signal.”); 60 (alleging that Forenza discloses obtaining certain parameters “all of which are examples of obtaining path parameter information (***as construed by Patent Owner***)”); 61 (“As discussed above, CSI is path parameter information ***as construed by Patent Owner***”); 61 (“A POSITA would understand that these channel estimates contain path parameter information (***as construed by Patent Owner***)”); 64 (“As discussed above, the term ‘predistorting’ includes precoding of signals ***based on Patent Owner’s apparent construction of the term.***”). Thus, Petitioners present arguments exclusively under Patent Owner’s allegedly overly broad constructions that Petitioners insist, ***in the Petition itself***, are incorrect.

A petition that exclusively relies upon constructions it expressly disagrees with in the petition itself cannot be a basis for institution. “It is the petitioner that bears the burden of proof in IPRs.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Petitioners are further obliged to set forth “[h]ow the challenged claim is to be construed” and “[h]ow the construed claim is unpatentable.” 37 C.F.R. § 42.104(b)(4).

As the Board has confirmed, a petitioner cannot satisfy its burden of proof under constructions it insists are wrong. The Board’s decision in *Hologic, Inc. v.*

Enzo Life Sciences, Inc., IPR2018-00019, Paper 21 (Nov. 28, 2018) (“*Hologic*”)

addressed precisely the same question raised here:

This case presents an issue of claim construction: in a proceeding applying the *Phillips* claim-construction standard, may Petitioner satisfy its obligations under our rules by conducting unpatentability analysis ***only under a claim construction with which it expressly disagrees?***

Id., 2. There, just as here, “[n]early every time Petitioner discusses its use in the Petition of Patent Owner’s proposed construction, Petitioner affirmatively disagrees with the construction it adopts.” *Id.*, 4; *id.*, (“The Petition’s analysis of the unpatentability of the challenged claims is based on the claim-construction positions with which Petitioner disagrees.”).

Hologic resoundingly rejected this approach, reaffirmed its denial of institution and further confirmed that “Petitioner does not satisfy Rule 42.104(b)(3) when, in a proceeding applying the *Phillips* claim-construction standard, it ‘expressly disagree[s] with its proffered constructions.’” *Id.*, 6 (quoting *Western Digital Corp. v. SPEX Techs., Inc.*, IPR2018-00084, Paper 14, 12 (Apr. 25, 2018)). As the Board explained:

Petitioners have many options for proffering constructions to be used in deciding an *inter partes* review. They may choose to provide claim constructions with which they agree. At least under some circumstances, they also may choose to provide claim constructions

with which they disagree. For example, in an *inter partes* review where the broadest reasonable interpretation is being applied, a petitioner may proffer a construction advocated in District Court by the patent owner and may state that it disagrees that the construction is correct under the standard applied in District Court but that it proposes the construction as the broadest reasonable interpretation of the term in question. *Sony Corp. v. Collabo Innovations, Inc.*, Case IPR2017-00958, slip op. at 14 (PTAB Sept. 5, 2017) (Paper 8); *see* IPR2017-00958, Paper 1, 15–20; *see also* *Toshiba Corp. v. Lone Star Silicon Innovations, LLC*, Case IPR2018-00087, slip op. at 8 (PTAB May 2, 2018) (Paper 8); IPR2018-00087, Paper 1, 17–18. In addition, in broadest-reasonable-interpretation cases, a petitioner may argue that a claim is indefinite but still offer a construction for the claim. *See Varian Med. Sys., Inc. v. William Beaumont Hospital*, Case IPR2016-00169, slip op. at 7–8 (PTAB May 5, 2016) (Paper 14). Where a petitioner is concerned that the Board may not adopt what it believes is the proper claim construction, it may choose to offer alternative constructions and demonstrate unpatentability under each construction. *Changes to Implement Inter Partes Review Proceedings, Post-Grant Review Proceedings, and Transitional Program for Covered Business Method Patents*, 77 Fed. Reg. 48,680, 48,700 (Aug. 14, 2012).

On the other hand, Petitioner does not satisfy Rule 42.104(b)(3) when, in a proceeding applying the Phillips claim-construction standard, it “expressly disagree[s] with its proffered constructions.” *Western Digital*, IPR2018-00084, Paper 14, 12; *see also* *CareFusion Corp. v. Baxter Int’l, Inc.*, Case IPR2016-01456, slip op. at 6–7 (PTAB

Feb. 6, 2017) (Paper 9) (“Petitioner has failed to prove a sufficient statement of how the challenged claims are to be construed” because “it relies on constructions advanced by Patent Owner in the related litigation” but “also states that it *does not agree that those constructions are in fact correct.*” (emphasis in original)).

As discussed above, this is a case in which we apply the *Phillips* claim-construction standard, and Petitioner expressly disagrees with nearly all of the claim constructions it proffers, including at least one term in every challenged claim. Accordingly, given the analysis in *Western Digital* and *CareFusion*, with which we agree, we are not persuaded that we abused our discretion by concluding that Petitioner did not satisfy Rule 42.104(b)(3).

Hologic, 5-7.

Subsequent Board decisions have followed *Hologic*’s reasoning. *See, e.g., Orthopediatrics*, IPR2018-01548, Paper 9, 9 (denying institution as petitioner did not meet burden where “Petitioner’s contentions are limited to how the claim limitations at issue *should not be construed*”) (emphasis in original); *Samsung Elecs. of Am., Inc. v. Uniloc 2017 LLC*, IPR2020-00046, Paper 6, 10 (Apr. 1, 2020) (“We exercise our discretion and decline Petitioner’s invitation to adopt allegedly incorrect claim constructions and institute an *inter partes* review on the basis of those constructions.”) (denying institution); *see also Netflix, Inc. v. GoTV Streaming, LLC*, IPR2023-00757, Paper 18, 9 (Dec. 21, 2023) (“In *Hologic*, the Board decided that a party in an Office proceeding may not ‘expressly disagree’

with a claim-construction position in the proceeding and still advance the disagreed-with position in the proceeding.”) (citing and distinguishing *Hologic*, 2-7).

These decisions indicating, *inter alia*, that a petitioner may not rely solely upon claim construction it expressly disagrees with in the petition are consistent with the Office’s policy. Notably, the Office made clear, in the preamble of the rulemaking associated with the switch from a “broadest reasonable interpretation” standard to a *Phillips*-style claim construction standard, the Office’s official “agree[ment] with “[s]everal comments [which] acknowledged that harmonizing the claim construction standards **would prevent parties from taking inconsistent positions.**” *Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51350 (Oct. 11, 2018); *id.*, (“With a uniform application of the *Phillips* standard, patent challengers ... **will instead be required to choose a single claim construction that best captures the true meaning of the patent claim**”).

Petitioners unsuccessfully attempt to justify their approach by relying on *10X Genomics, Inc. v. Bio-Rad Labs., Inc.*, IPR2020-00086, Paper 8 (Apr. 27, 2020). Pet., 10. *Bio-Rad Labs.* is inapposite. It stands for the anodyne proposition that a Petitioners may rely, ***in the alternative***, upon constructions they propose ***and*** the Patent Owner’s constructions. *Id.*; *Bio-Rad Labs, Inc.*, IPR2020-00086, Paper

8, 21 (“At least two of the panel decisions cited by Patent Owner also recognize that a petitioner may offer alternative claim constructions.”). Importantly, *Bio-Rad Labs.* makes expressly clear that it is **not** addressing a situation like the one here, where a “petitioner ... rel[ies] solely on a claim construction it believes is incorrect.” *Bio-Rad Labs.*, IPR2020-00086, Paper 8, 22 (“[E]ven if our rules and guidance were correctly interpreted as prohibiting a petitioner from relying solely on a claim construction it believes is incorrect, that is not what Petitioner has done here. Petitioner proposes alternative claim constructions and presents at least one ground of unpatentability for each construction.”).

Petitioners also cite *Donnelly Distrib. LLC v. Russo Trading Co., Inc.*, IPR2019-00761, Paper 8 (Sept. 6, 2019). Pet., 10. But *Donnelly* is yet another case where the petitioner argued a limitation (“grip portion”) was met **in the alternative** under both patent owner’s construction and its own “proper” construction. See *Donnelly*, Paper 2 (Petition), 29-31 (identifying patent owner’s construction of “grip portion”), 31-33 (presenting “proper” construction of “grip portion”), 43-44 (explaining that “grip portion” is met under both patent owner and petitioner’s constructions). Patent Owner “filed no response” and thus, “d[id] not address Petitioner’s proposed constructions, nor d[id] it offer any constructions of its own.” *Donnelly*, Paper 8, 8. The Board instituted without making any “express construction[s].” *Id.* Thus, *Donnelly*, only confirms that a petitioner may offer

invalidity reads under alternative constructions. *Donnelly* does **not** suggest that a petition may be instituted if it **only** relies upon constructions it expressly disagrees with.

Thus, the Board’s caselaw and the Office’s policy indicates that a petition may not be instituted if it is solely based upon constructions the petitioner expressly disagrees with. But even if, *arguendo*, Petitioners could rely solely upon claim constructions they expressly disagree with, the Petition should still be rejected because Petitioners misstate Patent Owner’s position. This is not just a case in which Petitioners expressly disavow in their own Petition the construction on which the Petition relies. It is a case where **no one** has advanced the construction on which the Petition relies. As Patent Owner explains in Sections II.B, II.C.1, *infra*, Petitioners fail to demonstrate that either Sesia or Forenza disclose and/or render obvious “path parameter information” for a specific “propagation path,” relying instead upon channel estimates that provide parameters relating to the combined effect of multiple propagation paths within a propagation channel—not for any individual propagation path within that channel or for any channel that constitutes a specific propagation path. *Id.* Thus, even if a petitioner could proceed with claim construction positions it expressly disagrees with if the interpretation is consistent with a patent owner’s infringement position,

Petitioners’ interpretation of limitation 1.3 is **not** consistent with Patent Owner’s position, as explained in further detail above and in Sections II.B, II.C.1.

Because Petitioners rely solely upon claim constructions they expressly disagree with in the Petition, and in the case of limitation 1.3, an interpretation that no one agrees with, Petitioners cannot satisfy their burden of proving a reasonable likelihood of prevailing. Consequently, institution should be denied.

B. Petitioners’ Sesia-Based Ground Fails To Show Channel Estimation That Obtains Path Parameter Information “Of The First Propagation Path” (Ground 1, All Claims).

Claim 1 requires “receiving [a] first signal” and “performing a channel estimation based on the first signal *to obtain path parameter information of the first propagation path.*” Ex. 1001 [’347] cl. 1. Thus, claim 1 requires “obtain[ing] path parameter information of the *first propagation path,*” *i.e.*, of a specific propagation path. Independent claims 8, 15 and 19 recite similar limitations. *See id.*, limitations 8.4, 15.3.2, 19.3.2.

The claimed method accords with the patent’s teachings, wherein “channel estimation” is employed to obtain path parameter information “for each of the *propagation paths* 170, 175, and 180”:

After the first signal is received 430 at the receiver 150, *a channel estimation algorithm is performed to obtain* the estimates of the delay τ , the Doppler frequency μ , and direction of arrival Ω_1 , the direction

departure Ω_2 , and the complex amplitude α ***for each of the propagation paths 170, 175, and 180.***

Ex. 1001 ['347] 8:11-16. The '347 further provides an exemplary formula where path parameter information is calculated for individual paths. *Id.*, 9:15-48 (describing an example “where path 170 corresponds to $i=1$ and path 180 corresponds to $i=2$ ”).

Petitioners rely on Sesia alone for the disclosure of obtaining path parameter information “of the first propagation path.” Pet., 34-35. As explained below, however, Petitioners fail to show that Sesia discloses obtaining path parameter information for any specific “propagation path,” let alone “the first propagation path.” Rather, all channel feedback information identified by Petitioners relate to the channel as whole, which undisputedly consists of numerous propagation paths, and reflects alleged “parameter information” for the collective impact of all propagation paths within the channel.

To argue that Sesia discloses “a plurality of propagation paths,” as recited in claim 1’s preamble, Petitioners annotate Sesia Fig. 20.1, showing a channel with three propagation paths in blue, orange and green:

Ex. 1003 at Fig. 20.1 (annotated); see also Ex. 1005, Fig. C.

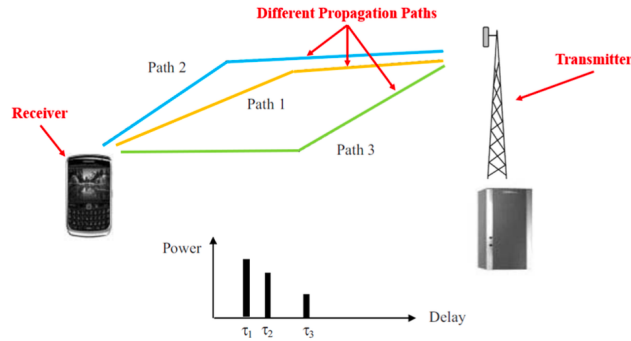


Figure 20.1: Multipath propagation and PDP.

Pet., 30 (annotation in original).

For limitation 1.1, “transmitting a first signal from the transmitter to the receiver via *a first propagation* path of the plurality of propagation paths,” Petitioners explain that the reference signal in Sesia is transmitted along at least one of the multiple propagation paths shown in the annotation immediately above. Pet., 30-31; Ex. 1005 [Almeroth-Decl.] ¶ 121 (explaining that “the first signal is a reference signal that is transmitted by the transmitter along the at least one of the propagation paths that exist between the transmitter and the receiver.”).

For limitation 1.3, however, Petitioners do not even attempt to show that Sesia discloses obtaining path parameter information for any of the specific propagation paths Petitioners identified in the preamble, or for any other specific “propagation path.” Instead, Petitioners contend that obtaining path parameter information for a “channel” as a whole discloses obtaining path parameter

information for “the first propagation path.” *See, e.g.,* Pet., 32 (“Sesia discloses that this is possible because channel estimation attempts to describe the ‘channel model,’ which is controlled by the physical propagation characteristics of the ***channel (i.e., the propagation path).***”) (citing Ex. 1003 [Sesia] 174-175).

But as Petitioners acknowledge in connection with the preamble and limitation 1.1, the channel identified by Petitioners from Sesia contains ***three*** “propagation paths” within it, and therefore is not equivalent to a specific “propagation path” (e.g., the “first propagation path”). Pet., 29-31. In fact, the very portion of Sesia cited by Petitioners for the disclosure of “channel estimation” confirms that the “channel model” depends on “the number of transmit and receive antennas,” conveying that the “channel estimate” in Sesia encompasses multiple propagation paths from multiple antennas. Ex. 1003 [Sesia] 174 (cited by Pet., 32); *see also* Ex. 1005 [Almeroth-Decl.] ¶ 127 (discussing the same). Sesia further confirms that “the [reference] signal transmitted from each antenna port is not designed to be further deconstructed by the UE receiver,” but “enables the UE to ***derive a channel estimate for all data transmitted on that antenna port ...***” Ex. 1003 [Sesia] 167 (cited by Pet., 32).

Petitioners also rely on multiple input multiple output (MIMO) configurations for limitation 1.5 (but not 1.3), but, there too, Sesia explains that it obtains the channel estimate based on a channel model for a “multipath channel,”

which in turns means the estimate encompasses the combined effect of all the paths within the channel, and not of any individual path. *Id.*, 175 (“In the general case, each MIMO ***multipath channel*** component can experience different but related spatial scattering conditions leading to a full three-dimensional correlation function across the three domains.”); *id.* (“The Wide-Sense Stationary Uncorrelated Scattering (WSSUS) channel model is commonly employed for the ***multipath channels*** experienced in mobile communications.”).

The ’347’s specification also confirms that obtaining path parameter information for a channel consisting of multiple propagation paths is not the same as obtaining path parameter information for a specific propagation path. The ’347 explains that a “propagation channel” in an exemplary embodiment includes multiple “propagation paths” and, moreover, it is the “superposition” of those paths (*i.e.*, the combination of the paths) that constitutes the overall channel response:

Returning to FIG. 1, as understood by one of ordinary skill in the art, the impulse response of ***the propagation channel can be viewed as the superposition of multiple specular propagation paths 170, 175, and 180*** between a transmitter 110 and a receiver 150.

Ex. 1001 [’347] 7:33-37. Yet, the claimed method obtains path parameter information for a specific propagation path (*e.g.*, path 170, 175, or 180), ***not*** for the “propagation channel” as a whole (which includes all of those three paths). *Id.*,

8:11-16, 9:15-48, 16:40-51 (claim 1, reciting “obtain[ing] path parameter information of the first propagation path.”).

Notably, the ’347 emphasizes the “per-path” aspect of its inventive system when distinguishing the prior art:

In these [prior art] models, multiple paths characterized by delay, Doppler, directions and polarizations are added to reproduce the time-variant channels. While the user-focusing system and methods described herein utilize multiple propagation paths, *the concept of per-path-modulation and the pre-distortion method are different* from the method used the GSCM-based channel simulation.

Ex. 1001 [’347] 12:25-31.

Thus, Sesia and the ’347 both recognize that the propagation channel between a transmitter and a receiver may contain multiple propagation paths. Yet, the ’347’s claimed method requires obtaining path parameter information for a specific propagation path (specifically, “the first propagation path”), while Sesia only obtains an estimate for an entire channel that the Petition acknowledges includes *multiple* propagation paths such that the resulting information is not alleged to be “of” any specific propagation path. Petitioners ignore this difference.

Moreover, contrary to Petitioners’ suggestion, Patent Owner’s infringement contentions are entirely consistent with the understanding that the claims require “obtain[ing] path parameter information” for a specific “propagation path.” Unlike

Sesia, which transmits reference signals to estimate an entire channel consisting of numerous “propagation paths” (Ex. 1003 [Sesia] 167 (cited by Pet., 32)), the infringing devices implement the ’347’s inventive approach. They do so, *inter alia*, by using channel estimations applicable to narrow-band beams, which constitutes path parameter information of a *specific* “propagation path” (unlike the channels in Sesia which the Petition expressly alleges are made up of a plurality of propagation paths). *See, e.g.*, Ex. 1015 [Infringement-Contentions] 5 (“For example, the base station initially transmits *via a narrow-beam antenna* to the UE.”). The “path parameter information” is then obtained for each of the narrow-band beams, *i.e.*, “path parameter information of” each specific “propagation path” (including “path parameter information of the first propagation path”) is obtained. *Id.*, 6-7. That is distinct from the wide-band beam of LTE (and Sesia), where the propagation channel encompasses numerous “propagation paths,” and the channel estimate reflects the combined effect of all “propagation paths” contained within the channel.

Petitioners’ failure to show disclosure of limitation 1.3 does not depend on whether “path parameter information” can be disclosed by explicit or implicit channel feedback. Pet., 11-12. Petitioners contend that Sesia discloses both “explicit” and “implicit” feedback. *Id.*, 34-35. This, however, is irrelevant, as

neither of these alternatives are shown to obtain path parameter information for any specific “propagation path.”

The Petition also asserts, in conclusory fashion, that Sesia renders limitation 1.3 obvious. Pet., 32, 36 (“Thus, Sesia discloses *and/or renders obvious* ‘performing a channel estimation based on the first signal to obtain path parameter information of the first propagation path.’”). Yet, Petitioners provide no analysis of any kind to explain why obtaining path parameter information for a specific “propagation path” as opposed to the entire channel would have been “obvious” based on Sesia alone. Nor do Petitioners identify what modification of Sesia would be made to address Sesia’s shortcoming or why a POSITA would be motivated to make the modification with a reasonable expectation of success. Petitioners’ conclusory assertion is legally insufficient to establish obviousness. *Magnum Oil*, 829 F.3d at 1380 (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”).

Indeed, supplying a “missing limitation” requires a “searching” inquiry.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362-63 (Fed. Cir. 2016). This is particularly so here where, as discussed, obtaining path parameter information for a specific path is an important part of the invention that is specifically identified as

an improvement over the prior art. *See* Ex. 1001 [’347] 8:4-16, 12:27-31. What is more, “common sense” can be used to supply a missing limitation “*only* when ‘the limitation in question [is] unusually simple and the technology particularly straightforward.’” *DSS Tech. Mgm’t v. Apple Inc.*, 885 F.3d 1367, 1374-75 (Fed. Cir. 2018) (citations omitted). Identifying path parameter information in the context of wireless communications, is hardly “unusually simple” and “straightforward.”

For the foregoing reasons, Petitioners fail to show disclosure of limitation 1.3, by failing to show obtaining path parameter information “of the first propagation path.”

C. Petitioners’ Forenza-Based Fails To Show Multiple Limitations (Ground 2, All Claims).

Like its Sesia Ground, Petitioners’ Forenza Ground also fails for the same reasons and more. Like Sesia, Forenza is also not shown to obtain path parameter information for any specific “propagation path.” *See* Section II.C.1. Petitioners also fail to show that Forenza discloses predistorting a signal in the time, frequency *and* spatial domains, as required by the claims. *See* Section II.C.2, *infra*.

1. Petitioners Fail To Show That Forenza’s Channel Estimation Obtains Path Parameter Information “Of The First Propagation Path” (Limitation 1.3).

As explained in Section II.B, each of the claims require “obtain[ing] path parameter information of the *first propagation path*,” *i.e.*, of a specific propagation

path. Again, the '347 makes clear that obtaining path parameter information for a “propagation channel” consisting of multiple propagation paths, without obtaining path parameter information for any specific propagation path, does not meet the claims.

Petitioners contend that Forenza satisfies this limitation under two alternative theories. Petitioners first argue that Forenza’s “Figures 3-6 embodiment” discloses this limitation. Pet., 60-61. Alternatively, Petitioners argue that a POSITA would have been motivated to modify the Figures 3-6 embodiment to include channel estimation from the I/Q Imbalance embodiment.” Pet., 62. Both arguments fail because, *inter alia*, neither alternative is shown to obtain path parameter information for any specific propagation path. Additionally, Petitioners fail to prove a POSITA would have been motivated to combine the two embodiments.

Petitioners first contend that Forenza’s “channel characterization” process in the “Figures 3-6 embodiment” discloses obtaining path parameter information for “the first propagation path.” Pet., 60-61 (citing Forenza, 31:18-26, 31:43-46, 31:50-59); Pet., 61 (citing Forenza, 15:4-18, which Petitioner characterizes as “describing Figures 4-6”); Pet., 57 (Petitioners: Fig. 6 discloses “a plurality of propagation paths”), 59 (Petitioners: Fig. 4 discloses “transmitting a first signal .. via a first propagation path ...”).

Petitioners argue that in the Figures 3-6 embodiment:

The characterization can be a “vector of phase/amplitude offsets” containing “some fixed number of phase and amplitude offsets” such as “eight.” *Id.*, 31:43-46. Forenza labels these vectors as H_{nm} , where n is the client device and ***m is the propagation path.*** Ex. 1005, ¶ 287.

Pet., 61. Petitioners also rely on Forenza’s alleged disclosure of CSI (channel state information) in relation to Figures 4-6, and thus on the same channel estimate vector H_{nm} . *Id.*

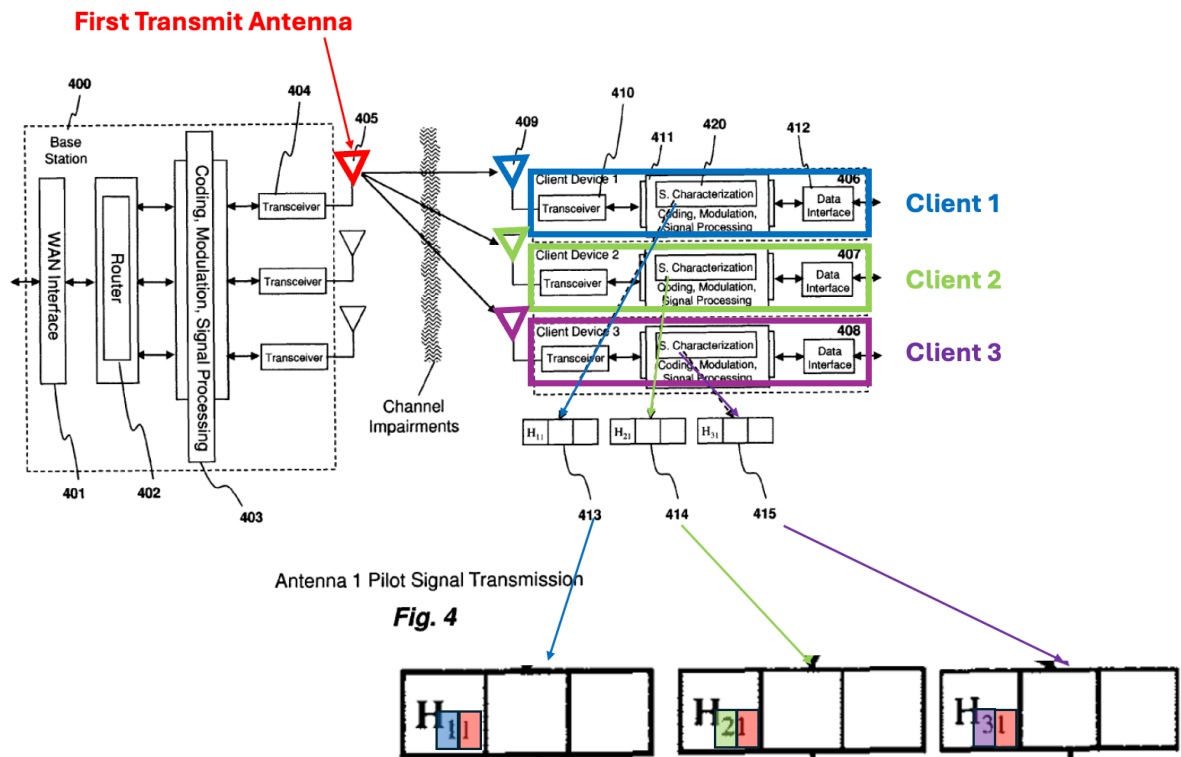
Therefore, in their first alternative theory, Petitioners assert that Forenza’s Figures 3-6 embodiment discloses obtaining path parameter information for a specific propagation path because in matrix entry H_{nm} , “***m is the propagation path.***” Pet., 61. But this is false. “ m ” is ***not*** a propagation path; it is an antenna.

As Forenza makes clear, “[e]ach individual matrix element ***H_{i,j} is the channel characterization*** (which is typically a vector, as described above) of the training ***signal transmission of transmit antenna 104 i as received by the receive antenna 105 j.***” Ex. 1014 [Forenza] 26:65-27:9. Thus, for entry $H_{i,j}$, “ i ” is a particular transmit antenna and “ j ” is a particular receive antenna; neither “ i ” nor “ j ” is indicative of a specific “propagation path.”

Forenza explains that in a traditional MIMO system, each transmitter antenna (“ i ” in this instance) transmits a “training signal” to the receiver antenna (“ j ”). Ex. 1014 [Forenza] 26:41-43. Using the training signal, the receiver obtains

the channel characterization, which may include phase and amplitude changes. *Id.*, 26:50-57. Each receiver then sends back the channel characterization with respect to each transmit antenna back to the transmitter. *Id.*, 26:65-27:9.

The channel characterization process of the Figures 3-6 embodiment is similar to that of Figure 1, with the only difference being that each client has only one receive antenna. *Id.*, 31:26-29. Forenza's numerical examples in the Figures 3-6 embodiment confirm this. For example, Forenza Fig. 4 (reproduced below with annotations) shows the first transmit antenna 405 transmitting its training signal that is received by each of client antennas 409:



Forenza's Fig. 4 shows channel response matrix entries H_{11} , H_{21} , and H_{31} , numbered 413, 414 and 415, respectively. H_{11} , H_{21} , and H_{31} are the channel responses between each of clients 1, 2 and 3 and transmitter antenna 1. For example, with respect to entry H_{11} , Forenza explains that it represents the channel state between antenna 405 and the first client device 406. Ex. 1014 [Forenza] 31:46-49. Similarly, Forenza explains that H_{21} and H_{31} represent the channel state information between transmit antenna 405 and client devices 407 and 408, respectively. *Id.*, 31:47-49. Similar entries are created for the remaining two transmit antennas. *Id.*, 31:66-32:2.

Thus, matrix entries, such as H_{ij} or H_{nm} represent a channel characterization (concerning, e.g., phase and amplitude changes) between a receive antenna and a transmit antenna. Nothing in Forenza states or suggests that the channel between two antennas is a specific propagation path, or that any channel characterization matrix entry such as H_{ij} or H_{nm} represents the characterization of any specific propagation path.

Lacking any express disclosure in Forenza, Petitioners, who contend Forenza "discloses" limitation 1.3 (Pet., 60), must rely on inherency. To establish inherency, Petitioner must demonstrate that the limitation is “*necessarily present*,” not merely probably or possibly present, in the prior art.” *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir. 2002); *see also PAR Pharm. v.*

TWi Pharms., Inc., 773 F.3d 1186, 1195-1196 (Fed. Cir. 2014) (“A party must [] meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.”); *Southwire Co. v. Cerro Wire LLC*, 870 F.3d 1306, 1310-1311 (Fed. Cir. 2017) (similar).

Petitioners, however, fall well short of demonstrating that the channel between Forenza’s transmitter antenna and client device is inherently—*i.e.*, ***necessarily***—a specific propagation path. Instead, Petitioners provide only the conclusory assertion, contradicted by Forenza itself, that “m is the propagation path,” citing paragraph 287 of their expert declaration. Pet., 32. Their expert declaration merely repeats this conclusory and demonstrably incorrect assertion. Ex. 1005 [Almeroth-Decl.] ¶ 287 (“m is the propagation path.”). But an inherent disclosure may not be established through such conclusory statements, even if made by an expert. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15 (August 24, 2022) (precedential) (expert testimony that “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support,” without any additional analysis, is entitled to little weight); *IBM Corp. v. Intellectual Ventures II LLC*, IPR2014-00682, Paper 11, 18 (Oct. 30, 2014) (expert statement that a POSITA “would have understood” reference to teach limitation “does not support either an

explicit or inherent disclosure of [the] limitation” and “is conclusory and not persuasive.”); *see also Broadcom Ltd. v. Tessera Advanced Techs., Inc.*, IPR2017-00736, Paper 8, 18 (July 27, 2017) (declaration’s conclusory testimony does not show inherency). And this holds doubly more so when, as here, the conclusory statement is clearly wrong.

This should be sufficient to reject Petitioners’ first alternative theory under the Figures 3-6 embodiment for limitation 1.3. To the extent more is needed, however, there is no basis upon which to assume that the channel between two antennas is necessarily a specific propagation path. In fact, Petitioners’ own expert opined, in his discussion of Sesia, that “***several*** propagation paths ... exist when performing wireless communications between a transmitter ... and a receiver”:

Figure C shows an annotated Figure 20.1 of Sesia, which ***illustrates several propagation paths that exist when performing wireless communications between a transmitter*** (e.g., an eNodeB with an omnidirectional antenna) ***and a receiver*** (e.g., a UE). Ex. 1003 at 438-439. In Figure C these propagation paths are shown as Paths 1 (orange), 2 (blue) and 3 (green). Ex. 1003 at 439-39. Each of these propagation paths are capable of carrying a signal that is transmitted by the transmitter to the receiver. *Id.* at 437-39.

Figure C – Annotated Figure 20.1 of Sesia (Ex. 1003)

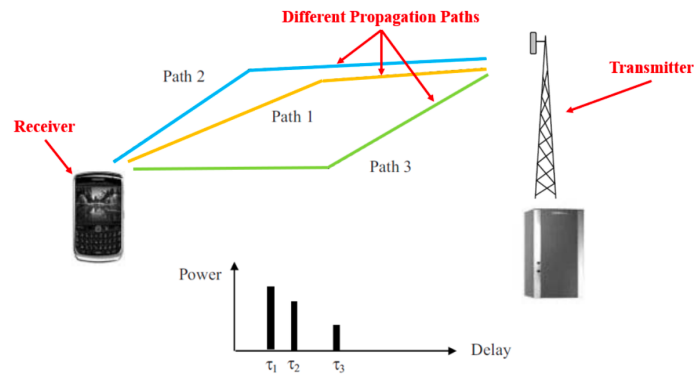


Figure 20.1: Multipath propagation and PDP.

Ex. 1005 [Almeroth-Decl.] ¶ 75. Thus, far from proving that the channel between two antennas is *necessarily* a specific propagation path, both Sesia and Petitioners’ own expert confirm that the channel between two antennas may constitute multiple propagation paths. Consequently, Petitioners’ argument under the Figures 3-6 embodiment fails.

Petitioners’ alternative theory fares no better. There, Petitioners rely on Forenza’s disclosure that its user device “estimates the channel ... via training symbols and feedbacks these estimates to the precoder 1302 within the AP,” which are then used to cancel “interference due to I/Q gain and phase imbalance.” Pet., 61 (citing Ex. 1014 [Forenza] 37:12-20, 43:66-44:4, 41:64-42:25). Petitioners refer to this embodiment as the “I/Q Imbalance embodiment” and argue that the channel estimates there “contain path parameter information.” Pet., 62. Petitioners first assert that a “POSITA would understand” that the I/Q Imbalance embodiment

is “the same embodiment as Figures 3-6.” Pet., 61. Petitioners argue in the alternative that a POSITA “would have been motivated to modify the Figures 3-6 embodiment to include channel estimations from the I/Q Imbalance embodiment.” Pet., 62. Both arguments fail.

First, the I/Q Imbalance embodiment, whether it is the same as or could be combined with the Figures 3-6 embodiment, is not shown to disclose path parameter information for any specific propagation path. Specifically, similar to the Figures 3-6 embodiment, the I/Q Imbalance embodiment “estimates the channel,” which, as explained, Petitioners have not shown to be a specific propagation path. Ex. 1004 [Forenza] 43:67 (cited by Pet., 61). Petitioners contend a “POSITA would understand that these channel estimates contain path parameter information (as construed by Patent Owner).” Pet., 61. Significantly, however, Petitioners do not even contend that the channel estimates are indicative of path parameter information for any specific path as the claims require, as opposed to for the channel that consists of multiple paths as a whole.

Second, contrary to Petitioners’ assertion (Pet., 61), the I/Q Imbalance embodiment is not the same embodiment as Forenza’s Figures 3-6 embodiment. Forenza’s discussion of its Fig. 6 concludes at 34:6. The I/Q Imbalance embodiment is disclosed three columns later in Forenza under the heading

“***Additional*** Embodiments,” and the title of the embodiment is “DIDO-OFDM Precoding with I/Q Imbalance.” *See* Ex. 1014 [Forenza] 37:9-11.

Furthermore, the Figures 3-6 embodiment and the I/Q Imbalance embodiment have different architectures. The Figures 3-6 embodiment discloses a “MIDO” (***multiple***-input, ***distributed***-output) architecture, referring to the fact that the transmitter has multiple antennas (hence multiple-input), but the receivers have one antenna each and are distributed throughout the cell (hence distributed output). Ex. 1014 [Forenza] 30:1-8, 31:1-3, 29:56-67. In contrast, the I/Q Imbalance embodiment is a “***distributed***-input ***distributed*** output (DIDO)” architecture. *Id.*, 37:14-15. In a DIDO architecture, the transmit antennas are not multiple antennas on a single transmitter, but are individual antennas physically distributed across a large geographic region (hence distributed input). *Id.*, 11:1-5; 39:1-5. This is unlike the MIDO architecture of Figures 3-6 embodiment where the transmit antennas are located on the same transmitter. Thus, the Figures 3-6 embodiment and the I/Q Imbalance embodiment are not the same embodiment.

Third, Petitioners fail to show a motivation to modify Forenza’s Figures 3-6 embodiment to import the I/Q Imbalance embodiment methodology with a reasonable expectation of success. Forenza explains that its I/Q Imbalance embodiment discloses a method “to compensate for in-phase and quadrature (I/Q) imbalance ***in distributed-input distributed-output (DIDO) systems***” with OFDM

multiplexing. Ex. 1014 [Forenza] 37:12-16. Forenza further explains that there already are solutions for this I/Q imbalance in single input single output (SISO) systems, as well as in multiple input, multiple output (MIMO) systems. *Id.*, 38:22-62. Yet, Forenza explains that those methods are not applicable or otherwise transferrable to a DIDO architecture:

Unfortunately, there is currently no literature on how to correct for I/Q gain and phase imbalance errors in a distributed-input distributed-output (DIDO) communication system. The embodiments of the invention described below provide a solution to these problems.

Ex. 1014 [Forenza] 38:63-67. Forenza then devotes substantial disclosure to a method of addressing I/Q imbalance that does apply to its DIDO architecture. *Id.*

Petitioners' conclusory assertion (Pet., 62) that "[a] POSITA would have been motivated to modify the Figures 3-6 embodiments to include channel estimations from [the] I/Q Imbalance embodiment, as this would allow for cancellation of inter-carrier and inter-user interference" fails for multiple reasons. Petitioners have not provided any analysis tending to show that Forenza's MIMO architecture of Figures 3-6 even has any concerns relating to "inter-carrier and inter-user interference" that would warrant a modification. *Arctic Cat Inc. v. Polaris Indus.*, 795 Fed. Appx. 827, 833 (Fed. Cir., 2019) (rejecting motivation where party "failed to prove that these alleged problems with Sundahl existed"); *In re Omeprazole Patent Litig. v. Apotex Corp.*, 536 F.3d 1361, 1380 (Fed. Cir.

2008) (similar). Forenza itself only raises such concerns in connection with a DIDO architecture, not a MIDO architecture. Ex. 1014 [Forenza] 37:12-16.

But even if there were any concerns to compensate for I/Q imbalance in a MIDO architecture, Petitioners have not shown that the solutions are interchangeable or readily transferable between MIDO and DIDO architectures. Forenza teaches that the solutions are so different among different architectures that Forenza itself found existing literature on solutions relating to MIMO architectures not applicable to its DIDO architecture. There is no evidence or analysis indicating that Forenza's detailed methodology specifically designed for a DIDO system (Ex. 1014 [Forenza] 38:63-67) would be applicable to a MIDO system. Notably, a MIDO system, similar to a MIMO system but unlike a DIDO system, has transmitters that have multiple transmit antennas. Forenza teaches that I/Q imbalance solutions for MIMO systems are not applicable to its DIDO system. Ex. 1014 [Forenza] 38:44-66. This is more reason why Forenza's I/Q imbalance solution for a DIDO system has not been shown to apply to its MIDO architecture that has multiple transmit antennas.

For the foregoing reasons, Petitioners have failed to prove that Forenza discloses or renders obvious obtaining path parameter information for any specific "propagation path."

2. Petitioners Fail To Show Predistortion In All Three Of Time, Frequency And Spatial Domains (Limitation 1.5).

Limitation 1.5 requires “predistorting a second signal at the transmitter in a time domain, a frequency domain, and a spatial domain.” Independent claims 8, 15 and 19 recite similar limitations. *Id.*, limitations 8.5, 15.3.3, 19.3.4.

This is a consequential limitation. Indeed, the claims were allowed over the Joham reference which disclosed “predistorting ... in at least one of [the] time domain, frequency domain, and spatial domain” but not in “each of the time domain, frequency domain, and spatial domain”:

Regarding Independent Claim 1, the prior art made of record, Joham (“U.S. 2007/0177551 A1”) discloses a predistorting a signal in at least one of time domain, frequency domain, and spatial domain. ***Joham (“U.S. 2007/0177551 A1”) fails to teach the combination of limitations as claimed below and specifically wherein the predistorting is performed in each of the time domain, frequency domain, and spatial domain*** (see Interview for 5/13/2014 and submission on 6/11/2014 by applicant's representative on page 10 of 13).

Ex. 1003 [Prosecution-History] 49 (examiner reasons for allowance) (emphasis modified). Petitioners fail to prove that Forenza discloses or renders obvious predistorting signals in each of the time, frequency, and spatial domains.

Petitioners first rely on Forenza’s alleged disclosure of precoding based on an “H matrix,” arguing that “[a] POSITA would understand that precoding a

signal using *phase and amplitude* offsets would result in modulating the signal in *time, frequency, and spatial domain*,” and that “when offsetting a portion of a signal’s phase or amplitude, this results in modulating the signal in the time, frequency, and spatial domain.” Pet., 65 (citing Ex. 1005, ¶297).²

Petitioners, however, fail to show why Forenza’s precoding a signal using “phase and amplitude offsets” discloses predistorting in the “time, frequency and spatial domains.” Nor does Petitioners’ expert provide any additional explanation. 37 C.F.R. § 42.65 (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). This is an abject failure of proof. Quite simply, Petitioners point to two offsets (phase and amplitude), but fail to explain why those two offsets disclose predistorting in three domains (time, frequency, and spatial). This is not to say that two offsets, by definition, cannot result in predistortion in three domains. Here, however,

² The Petition only in its introduction summarily states that “Forenza provides another example of beamforming multiple propagation paths.” Pet., 2. But the Petition does not elsewhere repeat, much less substantiate this allegation, and does not contain any explanation or analysis of why Forenza discloses “beamforming.” *See generally* Petition. Instead, Petitioners rely on various disclosures in Forenza that are not expressly described as beamforming.

Petitioners have failed to prove how or explain why Forenza's two offsets result in predistortion in three domains.

The Petition (at 65) next cites Forenza's Fig. 21 embodiment (Ex. 1014 [Forenza] 51:38-46) as disclosing predistortion in the time, frequency, and spatial domains. This too is not shown to disclose predistortion in all three domains. First, this embodiment, like the I/Q imbalance disclosure discussed in Section II.C.1, *supra*, relates to a DIDO architecture. Ex. 1014 [Forenza] 51:35-37 ("The flowchart illustrated in FIG. 21 describes steps of the adaptive ***DIDO scheme***."). Petitioners do not even acknowledge this fact, let alone explain how and why a POSITA would combine Fig. 21's DIDO embodiment with the Figs. 3-6 MIDO embodiments Petitioners rely upon for the balance of the claims. Furthermore, the Fig. 21 embodiment merely discloses that "[i]n DIDO-OFDM systems the ***channel quality*** (or link quality metric) can be estimated in the time, frequency and space domains." *Id.*, 51:50-52. Thus, Petitioner cites a statement about estimating "channel quality" but this says nothing about "predistortion," much less in the time, frequency, and spatial domains.

Finally, similar to limitation 1.3, Petitioners rely on Forenza's I/Q Imbalance embodiment, which they argue "as discussed above would have been obvious to incorporate with Forenza's Figures 3-6 embodiment." Pet., 65. But, as discussed, Petitioners fail to show that a POSITA would have been motivated to modify

Forenza’s Figs. 3-6 **MIDO** embodiment in view of the I/Q Imbalance **DIDO** embodiment with a reasonable expectation of success. *See* Section II.C.1,

Second, the I/Q Imbalance embodiment is not even shown to disclose predistortion in all three of time, frequency, and spatial domains. Forenza discloses that its I/Q Imbalance embodiment seeks to address distortions in “phase, gain and delay.” Ex. 1014 [Forenza] 38:14-15; *see also id.*, 38:63-66; 39:67-40:1; 41:16-17; 44:57-59. Petitioners, however, make no effort to show why addressing phase, gain, and delay imbalances results in predistortion in all three of the time, frequency, and spatial domains.

Therefore, Petitioners have failed to show that Forenza discloses or renders obvious predistorting signals in all three of the time, frequency, and spatial domains.

III. PETITIONERS AND THEIR REAL-PARTIES-IN-INTEREST SHOULD NOT BE PERMITTED FOUR BITES AT THE APPLE.

Petitioners and their RPIs should not be permitted four bites at the validity apple. This is the second Petition challenging the same claims of the ’347 patent based on the same Sesia ground. A first petition (“First Petition”) was filed in IPR2024-00136 by petitioners T-Mobile, AT&T, Verizon Wireless, Nokia and Ericsson (“Carriers”). The First Petition was filed on December 4, 2023, and identified each of its petitioners as real-parties-in-interest (“RPIs”) and “likewise identif[ied] Samsung Electronics Co., Ltd.”—Petitioner here— “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 [district court] litigation ...” Ex. 2002 [IPR2024-00136-Petition] 2-3. The Carriers, moreover, are challenging the ’347’s validity in 2:22-cv-00477-JRG-RSP (E.D. Tex.) (“the Carrier Litigation,” lead case).

The instant Petition, the “Second Petition,” was filed two weeks later by Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. and it too identifies several petitioners from the First Petition as RPIs. Pet., 73-74 (“... Petitioners likewise identify 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] because Petitioners’ products are accused of infringement in their respective patent infringement actions.”). Petitioners are also challenging the ’347’s validity in 2:23-CV-00285-JRG-RSP (E.D. Tex.) (“Samsung Litigation”).

Thus, the ’347 patent is challenged by Petitioners in one IPR and their RPIs in another. The two IPRs, moreover, include an identical first ground (Sesia) and are based upon the same claim constructions. What is more, both IPRs will conclude after both district court trials have concluded. As discussed below, Petitioners’ duplicative IPR should be barred both under *Fintiv* and as an unwarranted parallel petition. See Sections III.A-B.

A. The Petition Should Be Denied Under *Fintiv*.

Each of the six *Fintiv* factors favors denial.

- Factor 1: No stay of either parallel district court litigation has been granted or even sought, and a stay of either is unlikely.
- Factor 2: Here, not one but two district court trials will occur months before the final written decision deadline.
- Factor 3: Largely due to Petitioners’ unnecessary delay in filing—filing just a day before the statutory deadline—there will be much investment by the parties and the district court in both cases.
- Factor 4: There is perfect overlap in both the claims and art at issue in this proceeding and in both district court cases, and Petitioners do not offer any stipulation in an effort to reduce this overlap.
- Factor 5: Petitioners are the defendants or RPIs of the defendants in both parallel litigations.
- Factor 6: The Petition fails to present a compelling challenge on the merits. Further still, this Petition is a partial “copycat” of Petitioners’ RPI’s petition, wherein Petitioners include an identical first ground, with a second ground on the same claims but applying different art, without either Petitioners or the Carriers providing any justification for instituting two parallel petitions.

Each of these factors is addressed in more detail below.

1. *Fintiv* Factor 1: The District Court Has Not Granted A Stay, Nor Is There Any Evidence That A Stay Will Be Granted.

Factor 1 weighs against institution. In the Samsung Litigation, no stay has been sought or issued. Nor is there any indication a stay will even be requested, much less evidence it would be granted. Petitioners' RPIs likewise have not requested a stay of the Carrier Litigation, and there is no evidence that a stay will be granted there either.

Significantly, Petitioners do not even say that they will seek a stay and they do not present any evidence that a stay, if requested would be granted. Pet., 71. And even if a stay were to be requested, it is unlikely to be granted in either case. The Carrier Litigation (brought by Petitioners' RPIs) is very far along. Infringement and invalidity contentions and claim construction disclosures have been exchanged and fact discovery is well underway. Ex. 1011 [Docket-Control-Order] 4-5. By the time the institution decision here is due (June 29, 2024), the Court will have held its *Markman* hearing, 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.*, 1, 3-4; Ex. 2001 [District-Litigation-Docket]. A stay is unlikely in such circumstances. *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 stay pending IPR where claim

construction and fact discovery complete and expert discovery would 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 stay pending IPR where claim construction and discovery complete).

Any stay of the Samsung Litigation is similarly unlikely. The '347 is one of five patents asserted there, each involving cellular base stations and/or user equipment that supports 3GPP 5G NR communications. Ex. 2027 [Infringement-Contentions] 2. Even if this IPR were instituted, Judge Gilstrap is unlikely to sever and stay the allegations concerning the '347, 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 and stay allegations as to patent challenged in instituted IPR even though case at an “early stage”). This is particularly true here, in view of the technical overlap between the five patents. Ex. 2027 [Infringement-Contentions] 2; *Polaris*, 2024 WL 1149223, at *6 (declining to sever where “the parties would have to engage in duplicative damages and technical discovery for the overlapping accused products” and “the Court and the parties would be burdened with the inefficiencies that result from doubling the necessary claim construction, pre-trial,

and trial proceedings.”)

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.

2. *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*, 9. Here, Factor 2 weighs against institution as both the Carrier Litigation ***and*** the Samsung Litigation have trial dates months earlier than the projected statutory deadline for the FWD here.

Here, the deadline for a final written decision in this IPR is June 29, 2025. The trial date in both litigations is earlier than that date. Trial in the Carrier Litigation, involving Petitioners’ RPIs, 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. Meanwhile, the Samsung Litigation is set for trial on May 5, 2025, nearly two months before the FWD deadline here. *See* Ex. 1017 [Samsung-Docket-Control-Order] 1; Pet., 71.

Moreover, the trial dates in both cases are consistent with the Federal Court Management Statistics for the Eastern District of Texas. *See* Interim Discretionary

Denial Memo (Ex. 1012) 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 [Trial-Statistics] (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. 1017 [Samsung-Docket-Control-Order] 1 (trial set for May 5, 2025); Ex. 2021 (parallel case filed June 16, 2023). Similarly, trial in the Carrier Litigation is set approximately 21 months after the cases were filed. *See* Ex. 1011 [Docket-Control-Order] 1 (trial set for September 23, 2024); Exs. 2004-2006 (parallel cases filed December 15-16, 2022).

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 v. Decapolis LLC*, IPR2022-00229, Paper 10, 9 (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*, 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, 9 (May 2, 2022) (“*NXP*”) (same), *reh’g denied*, Paper 20 (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, 9 (Mar. 24, 2011); *see also NXP*, 9 (“We generally take courts’ trial schedules at face value absent some strong evidence to the contrary.”) (quoting *Fintiv II*, 13).

3. *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*, 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.*, 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.*, 10. Here,

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 Petition, filing only one day before the statutory deadline, Factor 3 weighs heavily against institution.

In the Samsung Litigation, the parties have already served both infringement and invalidity contentions. Ex. 1017 [Samsung-Docket-Control-Order] 4. Fact discovery is already well underway and the Petitioners and Patent Owner have already responded to 24 and 18 interrogatories, respectively. In addition, the parties have already produced over 14,000 documents, totaling over 687,000 pages. And in the Carrier Litigation (in which Petitioners' products are accused), one of the petitioners here has already produced nearly 1,000 documents in response to a subpoena, totaling over 30,000 pages. Petitioners have also already served seven third-party subpoenas.

Moreover, in the Carrier Litigation, a *Markman* order resulting from the May 2, 2024 *Markman* hearing (Ex. 2001 [District-Litigation-Docket]) will likely issue prior to the June 29, 2024 institution deadline; the *Markman* decision would clearly qualify as a "substantive order." Additionally, by the institution deadline, both fact and expert discovery will have closed, and opening summary judgment and *Daubert* motions will have been filed. Ex. 1011 [Docket-Control-Order] 3.

Thus, the Court and the parties (the Samsung Petitioners, the Carriers, and

Patent Owner) will have invested significant time and resources in the district court litigations by the institution deadline. 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*, 10; *Fintiv II*, 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*, 23-24 (denying institution in part because claim construction was complete and fact discovery was nearly completed); *Roku*, 12 (same); *Mojo*, 9 (same).

Of course, the reason that the district court litigations will be so far along 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., 71. While the timing aspect of that statement may be technically true in regard to the Samsung Litigation (*compare* Pet., 75-78 (dated December 18, 2023) *with* Ex. 2022 [Samsung-Proof-of-Service] (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 real parties-in-interest. Pet., 73-74 (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 real parties-in-interest); 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.”) (emphases added). Here, the first of these real parties-in-interest was served on December 19, 2023,³ making the deadline for to file December 19, 2023. And the instant Petition was filed on December 18, 2023 (Pet., 75-78), just one day before the statutory deadline. The Samsung Petitioners therefore waited until the deadline 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 [IPR2024-00136-Petition] 69-73 (dated December 4, 2023) *with* Exs. 2007-2009, 2014 (Carriers served December 19-21, 2022). The Samsung Petitioners offer no explanation for why they did not file the Petition at

³ *See* Ex. 2009 [AT&T-Proof-of-Service] (proof of service of AT&T Services Inc. dated December 19, 2022); Ex. 2005 [AT&T-Complaint] (corresponding complaint alleging AT&T Services Inc. infringes the ’347 Patent).

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 [IPR2024-00135-Petition] 3, 49; Ex. 2016 [IPR2024-00137-Petition] 2-3, 64-67; Ex. 2017 [IPR2024-00138-Petition] 3, 76-77 (three other petitions filed November 22, 2023 through December 4, 2023, each also naming Petitioner Samsung Electronics Co., Ltd. as a real party-in-interest). And the Samsung Petitioners likewise exhibited the same delay in filing their petitions on these same three patents. Ex. 2023 [IPR2024-00315-Petition] 60-62; Ex. 2024 [IPR2024-00316-Petition] 75-78; Ex. 2025 [IPR2024-00317-Petition] 45-48; Ex. 2026 [IPR2024-00318-Petition] 73-76; (four petitions from Samsung on the same three patents challenged by the Carriers, all filed December 18, 2023, one day before the statutory deadline).

Nor can this delay be laid at Patent Owner’s feet. Patent Owner served its preliminary infringement contentions on five of the real parties-in-interest 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. 2029 [Carrier-Invalidity-Contentions] 40-42). 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, 15 (Jan. 19, 2023) (emphasis added, quotation marks omitted). The Board denied institution, and also noted that, “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 ’347 in this forum once they knew their products were accused of infringement in litigation involving their co-RPI.

4. *Fintiv* Factor 4: There Is Perfect 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*, 12-13. Here, Factor 4 weighs heavily against institution as there is complete overlap of the challenged and asserted claims, and the same art applied in the Petition is also relied upon at the district court. Petitioners, moreover, fail to mitigate this overlap through any stipulation.

The Petition challenges the very same claims that are asserted in the

Samsung Litigation. *Compare* Pet., 3 (challenging claims 1-4, 6-12, 14-17, and 19-23) *with* Ex. 2027 [Infringement-Contentions] 1 (identifying asserted claims 1-4, 6-12, 14-17, 19-23). The same is true of the Carrier Litigation. *Compare* Ex. 2010 [ATT-Infringement-Contentions] 1; Ex. 2011 [Verizon-Infringement-Contentions] 1; Ex. 2012 [T-Mobile-Infringement-Contentions] 1; *see also Vector Flow, Inc. v. HID Global Corp.*, IPR2023-00353, Paper 8, 22 (Jul. 17, 2023) , 22 (denying institution in part because the same claims were challenged at the PTAB and asserted in litigation); *EClinicalWorks*, 12 (same).

Petitioners' grounds are single-reference obviousness grounds based on Sesia and Forenza, both of which Petitioners similarly rely upon in the Samsung Litigation for various invalidity grounds, including anticipation and, like here, single-reference obviousness (Ex. 2013 [Invalidity-Contentions] 33, 35 (alleging that references on Charts C-01 through C-8 may anticipate or render obvious the challenged claims); *id.* 34 (indicating Sesia is the reference charted in C-06 and Forenza is the reference charted C-07)) as well as various other obviousness grounds involving Sesia (*id.* 41, 62-69)). There is thus perfect overlap in the prior art invalidity theories presented to the PTAB and to the district court in the Samsung Litigation.

Further, the Samsung Petitioners fail to offer any stipulation concerning what prior art they will rely upon in the district court litigation. This proceeding

could not possibly be an efficient alternative when Petitioners intend to assert the *exact same art* in the district court. *See, e.g., Code200, UAB v. Luminati Networks Ltd.*, IPR2020-01506, Paper 10, 11-12 (Feb. 16, 2021) (denying institution, 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, 26 (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”).

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*, 12.

5. *Fintiv* Factor 5: Petitioners and Their RPIs Are The Defendants In The District Court Litigations.

Petitioners are the defendants in the Samsung Litigation and their 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*, 15.

6. *Fintiv* Factor 6: Other Circumstances Weigh Strongly Against Institution, Including The Weakness Of The Petition, Petitioners’ Delay, and the Fact This Is An Unjustified Parallel Petition.

This factor looks at “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv I*, 9. This factor weighs heavily against institution for at least three 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 two single-reference obviousness grounds discloses or render obvious any of the challenged claims. *See* Section II, *supra*. Thus, the Petition fails to present a “compelling unpatentability challenge” (*see* Interim Discretionary Denial Memo (Ex. 1012) at 2-5) and fails to establish a reasonable likelihood of success.

Second, Petitioners unduly delayed in filing the Petition, filing just *one day* before the statutory deadline, and Petitioners offer no explanation for their delay. *See* Section III.A.3.

Third, *Fintiv* has also explained that “[o]ther facts and circumstances may also impact the Board’s discretion to deny institution[,]” including “parallel petitions challenging the same patent[.]” *Fintiv I*, 16. And, as discussed in Section III.B, *infra*, this factor too, strongly favors noninstitution. Petitioners and their co-RPI did not bring just one IPR challenging the ’347 patent, rather, Petitioners here

raised the present petition only two weeks after their RPIs, the Carriers, filed a petition raising the exact same Sesia ground, challenging exactly the same patent claims. Petitioners have not explained why a second petition is necessary or which petition should be given priority, and neither have the co-RPIs. *See* Section III.B. Thus, in reality, Petitioners and their co-RPIs seek not just two bites at the apple but, rather, four, a first in the Carrier Litigation trial, a second in the Samsung Litigation Trial, a third in IPR2024-00136, and a fourth here.

This is precisely the sort of harassment of patent owners the AIA was meant to avoid. Congress intended IPRs to provide ““quick and cost effective alternatives to litigation”” and to ““establish a more efficient and streamlined patent system that will improve patent quality[.]”” *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1317 (Fed. Cir. 2018) (quoting H. REP. NO. 112-98, 40, 48 (2011)). “Congress recognized the importance of protecting patent owners from patent challengers who could use the new administrative review procedures as ‘tools for harassment’” via ““repeated litigation and administrative attacks on the validity of a patent.”” *Id.* (quoting H. REP. NO. 112-98, 40). Protecting patent owners from “repeated” and “harassing” attacks is the impetus behind, not just *Fintiv*, but numerous other Board precedents. *See, e.g., Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19, 16-17 (Sept. 6, 2017) (“*Gen. Plastic*”) (precedential) (recognizing “the potential for abuse of the review process

by repeated attacks on patents”); *Valve Corp. v. Elec. Scripting Prods. Inc.*, IPR2019-00062, Paper 11, 15 (Apr. 2, 2019) (precedential) (similar).

* * *

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

B. This Unjustified Parallel Petition Should Be Denied.

Even if institution were appropriate, Petitioners and their co-real parties-in-interest have not justified two parallel petitions directed towards the ’347 patent. To the extent that IPR2024-00136 (also challenging the ’347) brought by Petitioners’ co-real party-in-interest has been or will be instituted, then this Petition should be denied as an unjustified, duplicative parallel petition.

Again, two petitions challenging the ’347 were filed within two weeks by nominally different petitioners but each petition identifies at least one petitioner from the other as an RPI. The two petitions, moreover, overlap substantially as they challenge the very same claims and the Second Petition raises an “identical” or “copycat” first ground as well as another ground challenging the same exact claims. Pet., 1 (“Petitioners note that the first ground of challenge (but not the second) in this Petition is a ‘*copycat*’ of the Petition filed in ... IPR2024-00136 ... Ground 1 of this Petition and the sole ground of the Carriers’ Petition challenge the same claims using the same prior art and for the same reasons. Both grounds cite

to substantively identical expert testimony, and otherwise cite to the same exhibits.”)), 72 (“An IPR Petition against the ’347 patent was recently filed by T-Mobile et al (collectively the ‘Carrier Petitioners’) in IPR2024-00136. That Petition has the ***identical ground of challenge*** based on Sesia as this Petition (Ground 1), but does not include this Petition’s ground of challenge based on Forenza (Ground 2).”).

Petition	Challenged Claims	Ground(s)
First Petition (IPR2024-00136)	1-4, 6-12, 14-17, 19-23	Obviousness over Sesia
Second Petition (IPR2024-00319)	1-4, 6-12, 14-17, 19-23	Obviousness over Sesia Obviousness over Forenza

The two petitions, moreover, rely upon substantially identical claim construction sections wherein the petitioner purports to rely on Patent Owner’s interpretations of the claims. *Compare* Ex. 2002 [IPR2024-00136-Petition] 13-16 *with* Pet., 10-13.

Neither the petitioners of the First Petition nor the Second Petition attempts to explain why both petitions should be instituted in view of the Office’s presumptive prohibition on parallel petitions. The Consolidated Trial Practice Guide (“CTPG,” Nov. 2019 Update) indicates that at most one petition per patent is sufficient “in most situations,” that “multiple petitions by a petitioner are not

necessary in the vast majority of cases,” and that multiple petitions challenging a particular patent should be “rare.” CTPG, 59.

This presumptive prohibition applies to petitions filed by the same petitioner *or their real parties-in-interest*. As the Office confirmed, petitions filed, respectively, by petitioners and their RPIs may qualify as “parallel petitions”:

To take into account the 35 U.S.C. 316(b) and 326(b) considerations of the economy, the integrity of the patent system, and the ability of the USPTO to provide timely and cost-effective PGRs, as outlined in the AIA, the USPTO has developed factors to consider when determining whether to institute an AIA review under several different circumstances, including when ... (3) *more than one petition is filed by the same petitioner (or privy or real party in interest with a petitioner)* at the same time as the first filed petition or up until the filing of the preliminary response in the first filed proceeding (“parallel petitions”) ...

Changes Under Consideration to Discretionary Institution Practices, Petition Word-Count Limits, and Settlement Practices for America Invents Act Trial Proceedings Before the Patent Trial and Appeal Board, 88 Fed. Reg. 24503, 24506 (Apr. 21, 2023).

Thus, the Office has confirmed that when, as here, a petitioner and “a real party in interest with [that] petitioner” file petitions directed towards the same patent “at the same time as the first filed petition *or up until the filing of the preliminary response in the first filed proceeding*,” the two petitions are treated as

“parallel petitions.” *Id.* The Office’s public policy, in this regard, conforms to the purposes of the AIA which was crafted to “prevent not only petitioners, but *also* real parties in interest, from requesting or maintaining alternative administrative attacks ... ‘on any ground that the petitioner raised or reasonably could have raised during that inter partes review.’” *Applications in Internet Time, LLC v. RPX Corp.*, 897 F.3d 1336, 1349 (Fed. Cir. 2018); *see also SharkNinja Operating LLC v. IRobot Corp.*, IPR2020-00734, Paper 11, 20 (Oct. 6, 2020) (precedential) (“We understand that ‘[patent owners] should not be forced to defend later ... administrative attacks on the same or related grounds by a party that is so closely related to the original petitioner as to qualify as a real party in interest.’”) (quoting *AIT*, 897 F.3d at 1350); *RPX Corp. v. Applications in Internet Time, LLC*, IPR2015-01750, Paper 128 (Oct. 2, 2020) (“[T]he purpose of the RPI provision in IPRs was to protect patent holders from multiple petitions.”) (citing *AIT*, 1349-1350).

Relatedly, in the related context of assessing *serial* petitions, the Board has confirmed the importance of determining the significance of “any relationship” between the first petitioner and the second petitioner in applying the *General Plastic* factors. *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11, 2 (precedential) (“[W]hen different petitioners challenge the same patent, we consider any relationship between those petitioners when weighing the General

Plastic factors.’’) (finding “significant relationship” between co-defendants accused of infringing patent based upon devices sold by one defendant incorporating technology licensed from the other). Just as the Board considers “*any* relationship” between petitioners in the context of *serial* petitions it too must consider an RPI relationship between petitioners in the context of *parallel* petitions.

Here, by mutual admission, the petitioners in the two cases are RPIs of one another. Moreover, just as in *Valve*, the pairs of petitioners here are both accused of infringement with respect to the very same products. *See* Ex. 2002 [IPR2024-00136-Petition] 2 (“Petitioners likewise identify Samsung [] [as an RPI] because its products are accused of infringement in the AT&T, T-Mobile, and Verizon actions, and Samsung [] has been named as a defendant in the litigation”); Pet., 73-74 (“...Petitioners likewise identify T-Mobile USA, Inc., AT&T Services Inc., AT&T Corp., AT&T Mobility LLC, and Cellco Partnership d/b/a Verizon Wireless because Petitioners’ products are accused of infringement in their respective patent infringement actions.”). Thus, the petitioners are both self-admitted mutual RPIs *and* they also have the very same “substantial relationship” identified in *Valve*.

Similarly, it would also make no sense for the Board to allow an RPI to proceed with a second IPR proceeding when it will be moot if a final written decision issues in the earlier case. 35 U.S.C. § 315(e)(1) (“The petitioner in an

inter partes review of a claim in a patent under this chapter that results in a final written decision ... *or the real party in interest ... of the petitioner may not ... maintain a proceeding before the Office* with respect to that claim on any ground that the petitioner raised or reasonably could have raised during that inter partes review.”).

Consequently, IPR2024-00136 and IPR2024-00319 should be treated as “parallel petitions.” As such, Petitioners here, or at the very least the petitioners in the Second IPR, should have identified:

(1) a ranking of the petitions in the order in which it wishes the Board to consider the merits, if the Board uses its discretion to institute any of the petitions, and (2) a succinct explanation of the differences between the petitions, why the issues addressed by the differences are material, and why the Board should exercise its discretion to institute additional petitions if it identifies one petition that satisfies petitioner’s burden under 35 U.S.C. § 314(a).

CTPG, 59-60. But no ranking of the petitions has been provided in either proceeding, nor is any explanation provided as to why any differences in the issues addressed by each are “material.” The Second Petition merely confirms that its first ground (concerning Sesia) is “identical” to the first ground in the First Petition, to which it appends a second ground (concerning Forenza) on the same claims challenged by the first ground.

Neither petition, moreover, makes any attempt to justify two petitions against the '347. The CTPG indicates that a second petition may be “necessary ... when the patent owner has asserted a large number of claims in litigation or when there is a dispute about priority date requiring arguments under multiple prior art references.” CTPG, 59. Neither set of petitioners, however, argues that these or any other exceptions should apply. Nor could they.

Both petitions challenge *exactly* the same set of claims, under *exactly* the same claim construction regime, and both raise *exactly* the same Sesia ground. The Board routinely rejects second petitions in the face of such overlap. *DISH Network LLC v. Broadband iTV, Inc.*, IPR2020-01360, Paper 15, 6 (Feb. 15, 2021) (rejecting second petition where same secondary references are employed and the same claims are challenged); *Applied Materials, Inc. v. Demaray LLC*, IPR2021-00105, Paper 13, 10 (May 12, 2021) (“Patent Owner’s arguments illustrate that there are more similarities than material differences between the challenges set forth in the petitions. Petitioner’s arguments highlight these similarities.”) (rejecting second petition); *Google LLC v. Uniloc 2017 LLC*, IPR2020-00448, Paper 11, 8 (July 9, 2020) (“Finally, as to Petitioner’s [efficiency argument], the fact that both petitions are based on the same prior art and are each directed to one claim—both of which are nearly identical—weighs against institution here. The highly duplicative nature of these two petitions and the small number of claims at

issue further indicates that one petition should have been sufficient.”); *Apple Inc. v. SEVEN Networks, LLC*, IPR2020-00254, Paper 13, 7-11 (Jul. 28, 2020) (“The instant Petition does not contain sufficiently material differences to support instituting an additional *inter partes* review of the ’127 patent.”).

The **only** difference is the Second Petition **adds** an additional ground challenging those same patent claims, but this just confirms that one petition was sufficient to begin with—the petitioners who filed the First Petition apparently saw no need to include it. Nor is any suggestion made that this second, Forenza ground is added to address some priority date question, different claim construction, or because it has some material difference with Sesia. Instead, Forenza, in Petitioners’ own words, is merely “another example,” just like Sesia:

The problem with the ’347 Patent and Patent Owner’s allegations is that beamforming in a time-domain, a frequency-domain, and a spatial-domain was part of the prior art 4G standard, **and numerous textbooks have been written** describing the channel estimation and beamforming capabilities of LTE. **One example is Sesia** et al., “LTE: The UMTS Long Term Evolution from Theory to Practice” (“Sesia”). **Forenza provides another example** of beamforming multiple propagation paths using information from a training signal.

Pet., 2; *id.*, 25 (“(‘Forenza’) discloses a **similar system**”).

Thus, the only difference between the two petitions is the addition of a second ground, that Petitioners concede is just “another example” of a “similar

system.” The duplicative Forenza ground is not rooted in some sort of material difference that might justify a second petition. *Commscope Techs. LLC v. Dali Wireless Inc.*, IPR2020-01409, Paper 10, 7 (Feb. 10, 2021) (“Petitioner does not explain why the differences between the prior art applied in the two petitions are material.”) (denying parallel petition); *Apple Inc. v. Masimo Corp.*, IPR2020-01723, Paper 8, 12 (May 12, 2021) (“Petitioner does not articulate why the mere presence of different asserted prior art combinations based on alleged and unspecified different motivations to combine is sufficient to overcome the inefficiencies and burden to the Board and Patent Owner that would result from institution of an inter partes review based on each of the Concurrent Petitions.”); *Roku, Inc. v. Universal Elecs., Inc.*, IPR2021-00262, Paper 9, 10 (July 9, 2021) (“Petitioner does not explain adequately why the mere fact that the petitions argue that different references teach ‘instruction data’ in different ways warrants more than one inter partes review of the challenged claims. Thus, Petitioner has not shown why the differences between the petitions amount to a material difference warranting institution of the present Petition.”).

Thus, to the extent the Board institutes the First Petition, then the instant Second Petition should be denied as an unjustified parallel petition.

IV. CONCLUSION

For the foregoing reasons, the Petition should be denied.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Patent Owner Preliminary Response (the “POPR”) consists of 13,351 words, excluding table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The POPR complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Respectfully submitted,

/ Parham Hendifar /

Date: March 29, 2024

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the following documents were served by electronic service, by consent between the parties (Pet. at 74), on the date signed below:

PATENT OWNER'S PRELIMINARY RESPONSE

EXHIBITS 2001-2017, 2019-2027, 2029

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