UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC. AND HP INC.,
Petitioners

v.

XR COMMUNICATIONS, LLC, D/B/A VIVATO TECHNOLOGIES,
Patent Owner

_____

IPR2022-00367
Patent No. 10,715,235

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PATENT OWNER'S PRELIMINARY RESPONSE

Table of Contents

I. Introduction 2

II. Petitioner's Asserted Grounds and References 2

III. Institution Should Be Denied Under the *Fintiv* Factors 2

A. Parallel Proceedings 22

B. Factor 1 weighs against institution, as there is no stay in the district court now and no evidence exists that a stay may be granted in the future. 23

C. Factor 2 weighs strongly against institution, as trial in the district court is scheduled to be completed seven months before the FWD 24

D. Factor 3 weighs strongly against institution, as claim construction proceedings in the district court case are already completed, and discovery is well under way, with fact discovery to be substantially completed before the date the institution decision is due. 25

E. Factor 4 weighs against institution, as there is overlap between this IPR and the district court case. 27

F. Factor 5 weighs against institution, as Petitioner is a Respondent in the parallel district court case. 29

G. Factor 6 weighs in against institution. 29

H. Summary Regarding *Fintiv* Factors 30

IV. Conclusion 31

IPR2024-00613
Petitioner's Exhibit 1010
Page 000002

Exhibits

Exhibit No.	Description
2001	Complaint, *XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA
2002	Complaint, *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA
2003	Scheduling Order, *XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA, Dkt. No. 27 (W.D. Tex., Jan. 13, 2022)
2004	Scheduling Order, *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA, Dkt. No. 24 (W.D. Tex., Jan. 13, 2022)
2005	Notice of Agreed Extension of Deadline, *XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA, Dkt. No. 27 (W.D. Tex., Jan. 13, 2022)
2006	Notice of Agreed Extension of Deadline, *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA, Dkt. No. 24 (W.D. Tex., Jan. 13, 2022)
2007	Exhibit A-14 to Defendants' Preliminary Invalidity Contentions in *XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA and *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA
2008	Excerpts of Defendants' Preliminary Invalidity Contentions in *XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA and *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA

I. Introduction

The Petition ("Pet.") challenges the claims 8-14 of U.S. Patent No. 10,715,235 (Ex. 1001) under two grounds of unpatentability. One of the primary objectives of the AIA was "to provide an effective and efficient alternative to district court litigation." But this IPR cannot be an alternative (much less an effective and efficient one) to a WDTex trial between Petitioner and Patent Owner scheduled to conclude before the FWD deadline. The parties have already begun investing significant resources in that case and at the time of the institution decision, the parties in the WDTex will have completed the Markman process and be in the midst of fact discovery. Further, the WDTex case and scheduled trial will involve the same claim construction standard, same invalidity theories, and same prior art references that are at issue in this IPR. Under the PTAB's precedential orders in *NHK Spring* and *Fintiv*, the Board should deny institution under § 314(a).

II. Petitioner's Asserted Grounds and References

The Petition asserts the following two grounds of unpatentability:

- Claims 8-12 are obvious over Burke. (Pet. at 2).
- Claims 13, 14 are obvious over Burke in view of Shull. (Pet. at 2).

III. Institution Should Be Denied Under the *Fintiv* Factors

35 U.S.C. § 314(a) only permits the Director to authorize institution when there is a reasonable likelihood that the petitioner will prevail with respect to at least

one of the challenged claims. Petitioners' arguments on the merits suffer from several weaknesses that apply to all grounds and challenged claims. Patent Owner addresses the Petition's merits below, particularly to show that the merits are not "particularly strong" and do not establish a reasonable likelihood of success. While these substantive issues provide an independent bases for denying institution of this IPR, they also fail to support institution under *Fintiv* Factor 6.

The Petition asserts only two grounds of unpatentability. Pet. at 2. Both grounds are based on the Burke reference. Pet. at 2. Patent Owner respectfully submits that Exhibit-1006 (Burke) does not qualify as prior art under 35 U.S.C. § 102(b) or § 102(e).

The Petition asserts that the Burke reference was filed on October 15, 2002. Pet. at 2. The Petition then asserts that Burke qualifies as prior art under 35 U.S.C. § 102(b) or § 102(e) based on an alleged priority date for the '235 Patent of November 3, 2003. Pet. at 2. However, as Applicant explained during the prosecution of the '534 Application, the challenged claims are entitled to a priority date at least as early as February 1, 2002. See EX-1002, 268-272 ('235 Patent File History, Office Action Response, dated July 25, 2018, at 2-6). Indeed, the Examiner found these arguments "persuasive" and agreed that the challenged claims are entitled to a priority date at least as early as February 1, 2002. EX-1002, 98 ('235 Patent File History, Office Action, dated September 26, 2018, at 2).

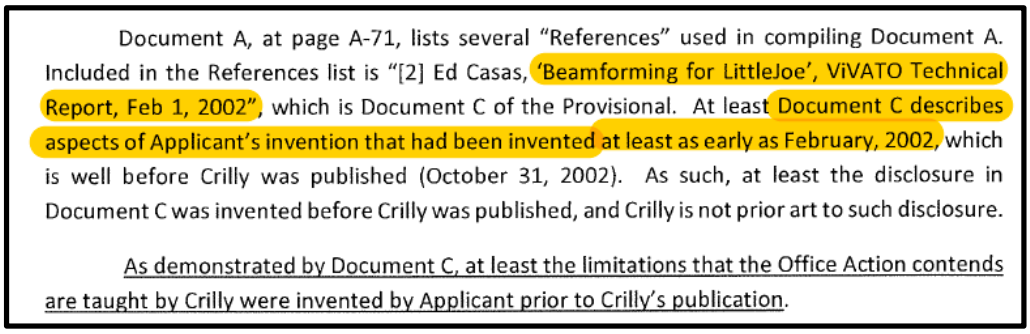
Because the challenged claims are entitled to a priority date at least as early as February 1, 2002, Exhibit-1006 (Burke) does not qualify as prior art under 35 U.S.C. § 102(b) or § 102(e). The Petition also asserts in Footnote 1 that "Burke claims priority to U.S. Provisional Appl. No. 60/355,296, which was filed Feb. 8, 2002, and the '296 provisional supports at least one of Burke's issued claims." Pet. at 2. Even if true, Burke would still not qualify as prior art under 35 U.S.C. § 102(b) or § 102(e), because the challenged claims are entitled to a priority date at least as early as February 1, 2002.

A. The Examiner Found The Challenged Claims Are Entitled To A Priority Date of February 1, 2002

During prosecution of the '539 Application, the Examiner rejected all the claims under 35 U.S.C. § 103 based on the combination of U.S. Patent Publication No. 2002/0158801 ("Crilly" or EX-1008) and U.S. Patent No. 6,714,584 ("Ishii"). However, Applicant successfully "traverse[d] the rejection, contending that Crilly is not prior art to the present application." EX-1002, 268-272, 986-987. As Applicant explained:

> "The present application claims priority to Provisional Application No. 60/423,660, which was filed November 4, 2002. The Provisional application includes a compilation of several documents, labeled Appendices A-L on page 2. These documents describe aspects and embodiments of Applicant's invention existing at the time the particular document was written.

> Document A, at page A-71, lists several "References" used in compiling Document A. Included in the References list is "[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1 2002," which is Document C of the Provisional. At least Document C describes aspects of Applicant's invention that had been invented at least as early as February, 2002, which is well before Crilly was published (October 31, 2002). As such, at least the disclosure in Document C was invented before Crilly was published, and Crilly is not prior art to such disclosure.

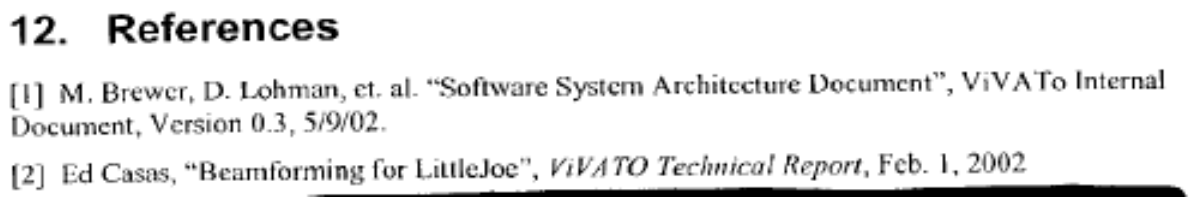

Document A, at page A-71, lists several "References" used in compiling Document A. Included in the References list is "[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1, 2002", which is Document C of the Provisional. At least Document C describes aspects of Applicant's invention that had been invented at least as early as February, 2002, which is well before Crilly was published (October 31, 2002). As such, at least the disclosure in Document C was invented before Crilly was published, and Crilly is not prior art to such disclosure.

As demonstrated by Document C, at least the limitations that the Office Action contends are taught by Crilly were invented by Applicant prior to Crilly's publication.

Ex. 1002, 268. Thus, as Applicant explained, the invention was conceived and reduced to practice at least as early as **February 1, 2002**—the date of "[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1 2002," which is included as Document C of Provisional Application 60/423,660 (the "'660 Provisional Application"). EX-1009, 134 (Feb. 1, 2002 "Beamforming for LittleJoe" Vivato Technical Report).

Applicant then proceeded to explain that each of the limitations that the Office Action contended were taught by Crilly were invented prior to Crilly's publication. EX-1002, 268-272. Accordingly, as the Examiner agreed, each element of the challenged claims is disclosed in EX-1009, 134 (Ed Casas, "Beamforming for LittleJoe," ViVATO Technical Report, Feb. 1, 2002). This article was included

within Provisional Application 60/423,660 as Document C. The article is dated February 1, 2002. This February 1, 2002 date is confirmed in the Little Joe Functional Specification in Provisional Application 60/423,660 at A-71 (EX-1009, 77):



12. References

[1] M. Brewer, D. Lohman, et. al. "Software System Architecture Document", ViVATo Internal Document, Version 0.3, 5/9/02.

[2] Ed Casas, "Beamforming for LittleJoe", *ViVATO Technical Report*, Feb. 1, 2002

This date is also confirmed in Document C. *See, e.g.,* Ex-1009, 148 ("AUTHOR/DATE: Ed Casas 2002/2/1").

B. The '660 Provisional Application Establishes A February 1, 2002 Priority Date For The Challenged Claims

The Examiner correctly found that the challenged claims are entitled to a priority date of February 1, 2002. The '660 Provisional Application includes an article dated February 1, 2002 that discloses the elements of the challenged claims. EX-1009, 77 ("[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1 2002"), 134 (Ed Casas, "Beamforming for LittleJoe," ViVATO Technical Report, Feb. 1, 2002), 148 ("AUTHOR/DATE: Ed Casas 2002/2/1").

The Petition wrongly contends that the '660 Provisional Application does not establish a February 1, 2002 invention date. Pet. at 11-12. Petitioner contends that an affidavit with inventor testimony corroborating the conception and reduction to

practice was required. Pet. at 11-12 (arguing that "[s]imply citing to disclosure in the '660 Provisional Application…is not sufficient to swear behind a reference or to establish an invention date prior to the provisional filing."). But there is no legal authority for Petitioners' flawed argument—and Petitioners fail to cite a single case in support of it. Indeed, such an affidavit is not necessary where contemporaneous documentary evidence corroborates the alleged priority date.

Here, the prosecution history record makes clear that the '660 Provisional Application must be afforded a priority date no later than February 1, 2002, in light of the dates listed and corroborating evidence *contained within the '660 Provisional Application itself*. As Applicant expressly stated (and as the Examiner correctly found), the '660 Provisional Application included documents corroborating that Document C (EX-1009, 134, Ed Casas, "Beamforming for LittleJoe," ViVATO Technical Report, Feb. 1, 2002), which provides the support for all the elements of the '235 patent claims, was completed and published on February 1, 2002. Ex. 1002, 268 (citing EX-1009, 77 ('660 Provisional Application, A-71) ("[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1 2002")); EX-1002, 1081-1083, 1091-1107.

Thus, the authenticating and corroborating evidence has been in the prosecution history of the '235 patent from day one. Indeed, although such documentary evidence is not required to establish a priority date through

corroboration, it is generally regarded as the best kind of corroborating evidence. *See, e.g., Loral Fairchild Corp. v. Matsushita Elec*., 266 F. 3d 1358, 1364 (Fed. Cir. 2001) (earlier priority date assertion must be sufficiently corroborated by independent evidence beyond the inventor's own testimony, "but not necessarily documentary evidence.")

Moreover, even if inventor declarations were necessary, the inventors in this case filed general oaths affirming the contents of and statements in the application, just as they did the prior applications from the same patent family. Ex. 1002, 1081-1083, 1091-1107.

Longstanding precedent confirms that documentary corroborating evidence is more than sufficient. "Conception must be proved by corroborating evidence which shows that the inventor disclosed to others his 'completed thought expressed in such clear terms as to enable those skilled in the art' to make the invention." *Coleman v. Dines*, 754 F.2d 353, 359 (Fed. Cir. 1985) ((quoting *Field v. Knowles*, 183 F.2d 593, 600 (C.C.P.A. 1950)). However, "there is no final single formula that must be followed in proving corroboration." *Kridl v. McCormick*, 105 F.3d 1446, 1450 (Fed. Cir. 1997) (quoting *Berry v. Webb*, 412 F.2d 261, 266 (C.C.P.A. 1969). For example, in *REG Synthestics Fuels*, the Federal Circuit held that the patent owner "has proven conception prior to the filing date of" the prior art, "based on" documentary evidence alone. *REG Synthetic Fuels, LLC v. Neste Oil Oyj*, 841 F.3d 954, 962 (Fed. Cir.

2016) (reversing the Board's findings on conception). The Federal Circuit noted that "there is no final single formula that must be followed in proving corroboration." *Id.* (citing *Kridl v. McCormick*, 105 F.3d 1446, 1450 (Fed. Cir. 1997) (quoting *Berry v. Webb*, 412 F.2d 261, 266 (C.C.P.A. 1969)). While the patent owner in REG Synthetics provided a declaration from the inventor, the Federal Circuit nonetheless held that the documentary evidence alone was sufficient to "prove[] conception prior to the filing date of" the asserted prior art. *Id.* Indeed, the Federal Circuit explained, "[t]hese three exhibits provide documentary evidence that, by April 2008, [the inventor] conceived of a definite and permanent idea of the complete and operative invention, and that he had disclosed to a third party his complete thoughts in such clear terms that the third party was able to make his invention using his process." *Id.*

Here, as shown above, contemporaneous documentary evidence corroborates the alleged priority date of February 1, 2002, which is the date of the article submitted as Document C in the '660 Provisional Application. For example, the Little Joe Functional Specification—included as Document A in the '660 Provisional Application—corroborates that Document C was dated February 1, 2002. (EX-1009, 77 ('660 Provisional Application, A-71) ("[2] Ed Casas, 'Beamforming for LittleJoe', ViVATO Technical Report, Feb 1 2002"). This matches the date appearing in Document C. EX-1009, 148 ("AUTHOR/DATE: Ed Casas 2002/2/1"). Accordingly, Document A and Document C in the '660

Provisional Application corroborate an invention date of February 1, 2002. The Petition does not challenge the admissibility of this evidence—nor could they, as the documents are self-authenticating. And thus, Applicant has successfully established and corroborated the February 1, 2002 priority date.

Next, Petitioner contends that Applicant's arguments during prosecution did not prove conception of the "complete and operative invention." Pet. at 13. However, Applicant's Arguments, and Document C itself, prove conception of the "complete and operative invention." *See* EX-1002, 268-272; EX-1009 ('660 Provisional Application), 134-137. Applicant's arguments proved conception of the complete and operative invention, including because Applicant provided citations showing the disclosure in Document C for each of the challenged claim elements of Challenged Claim 8. EX-1002, 268-272. Patent Owner respectfully submits that Document C discloses each of the challenged claim elements of Challenged Claim 8, as shown in the following table.

Challenged Claim 8	Support in EX-1009, 134-137 [Document C of '660 Provisional Application]
A method for use in a wireless communications system, the method comprising: receiving a first signal transmission from a remote station via a first antenna element of an antenna and a second signal transmission from the remote	EX-1009, 136 [C-3]: "The signal received by the array elements will be the vector sum of signals arriving by many paths." EX-1009, 136 [C-3] also refers to the "arrival of signals from the desired and undesired users."

station via a second antenna element of the antenna simultaneously, wherein the first signal transmission and the second signal transmission comprise electromagnetic signals comprising one or more transmission peaks and one or more transmission nulls;	EX-1009, 137 [C-4]: "The beamforming application uses the signal strength information derived from packet receptions by the 'searcher' receivers." EX-1009, 134-35 [C-1-C-2]: "Since this architecture cannot adjust the beamformer in real time it cannot cope with random-access transmissions from clients. This requires that the clients use a polling protocol rather than the standard random-access 802.11 MAC protocol." This "require[s] installing a 'shim' in the client's protocol stack." EX-1009, 136 [C-3]: "The signal received by the array elements will be the vector sum of signals arriving by many paths." EX-1009, 136 [C-3] also refers to the "arrival of signals from the desired and undesired users." EX-1009, 137 [C-4]: "The beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13.'" EX-1009, 140 [C-7]: "using the as above, 'boresight' angle of the beam

	with the strongest signal as the angle of arrival and setting the weights to the complex conjugates of the signals that would be received due to a signal in this direction" EX-1009, 138 [C-5]: "estimate[s] the angle of arrival using a 'center of mass' calculation over the three beams which are centered on the beam with the strongest signal."
determining first signal information for the first signal transmission [and];	EX-1009, 137 [C-4]: "The beamforming application uses the signal strength information derived from packet receptions by the 'searcher' receivers."
determining second signal information for the second signal transmission, wherein the second signal information is different than the first signal information;	EX-1009, 137 [C-4]: "The beamforming application uses the signal strength information derived from packet receptions by the 'searcher' receivers. However, not all of these receivers will correctly receive each packet." Also, "Each beam points in a different direction…" EX-1009, 137 [C-4]: "The beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13'".

determining a set of weighting values based on the first signal information and the second signal information, wherein the set of weighting values is configured to be used by the remote station to construct one or more beam-formed transmission signals;	EX-1009, 137 [C-4]: "The beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13'".
transmitting to the remote station a third signal comprising content based on the set of weighting values.	EX-1009, 137 [C-4]: "The beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13'". EX-1009, 134 [C-1]: "This signal level information is used to compute the complex weights for a second RF beamformer. This so-called 'card 13' beamformer allows independent complex weights on each array element. This beamformer is connected to an additional WLAN card which is the one actually used for communication (it can transmit and receive)." EX-1009, 134-35 [C-1-C-2]: "Since this architecture cannot adjust the beamformer in real time it cannot cope with random-access transmissions from clients. This requires that the clients use a polling protocol rather than the

	standard random-access 802.11 MAC protocol." This "require[s] installing a 'shim' in the client's protocol stack."

Document C also proves that reduction to practice had occurred at least as early as February 1, 2002. Petitioner contends that Document C does not represent a reduction to practice because a portion of Document C describes a "current simulation code." Pet. at 14, citing EX-1009, 143. Petitioner contends that a "computer simulation" is not a "physical embodiment." *Id*. As an initial matter, even if Document C were limited to describing a "computer simulation," that would still qualify as a physical embodiment and a reduction to practice of the claimed invention. But in any event, Document C proves that the "simulation code" was written to explore improvements to the physical embodiment of the *Little Joe* architecture that pre-dated the "simulation code." Document C confirms that *Little Joe* was an architecture that "uses two separate RF beamformers. The first beamformer, the 'searcher,' is for receiving only and uses a 16-port Butler matrix whose outputs are connected to 16 standard WLAN cards installed in a PC. An application on the PC obtains the received signal levels for each received packet. The signal level information is used to compute the complex weights for a second RF beamformer." EX-1009, 134. This evidences that the *Little Joe* architecture was reduced to practice before any "simulation code" was written.

IPR2024-00613
Petitioner's Exhibit 1010
Page 000016

Further, in the descriptions of the "simulation code," Document C provides that "[t]he results show that in most cases there is little advantage to a continuously-steerable beamformer as compared to one that can be steered over a small (*N*) number of angles. This raises the question of whether the *Little Joe* architecture could be simplified by using the same Butler matrix for transmitting and receiving." EX-1009, 142. This establishes that the *Little Joe* architecture was already built and reduced to practice as of the date that the "simulation code" was written to explore *further* improvements to an already-existing deployment. Once the invention has been shown to work for its intended purpose, reduction to practice is complete. *Loral Fairchild Corp. v. Matsushita Elec.*, 266 F.3d 1358, 1362–63 (Fed. Cir. 2001) (citing *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1578 (Fed. Cir. 1996)).

C. Document C in the '660 Provisional Application Provides Support For Each Limitation of the Challenged Claims

As shown above, the '660 Provisional Application disclosed all of the claimed features of the Challenged Claims, and thus supports a priority date of February 1, 2002.

Petitioner argues that there are "two limitations recited in claim 8 that are not supported in Document C." Pet. at 15. But Patent Owner respectfully submits that the two challenged claim elements are clearly disclosed in Document C. EX-1009, 134-143 (Feb. 1, 2002 "Beamforming for LittleJoe" Vivato Technical Report)

IPR2024-00613
Petitioner's Exhibit 1010
Page 000017

1. Receiving a first signal transmission from a remote station via a first antenna element of an antenna and a second signal transmission from the remote station via a second antenna element of the antenna simultaneously

The first challenged element is "receiving a first signal transmission from a remote station via a first antenna element of an antenna and a second signal transmission from the remote station via a second antenna element of the antenna simultaneously." EX-1001, 33:48-34:2.

Petitioner only disputes the portion of this element requiring "simultaneous" receipt of a first and second signal transmission from the same remote station. Pet. at 16. However, these elements are disclosed in Document C. As Petitioners note, the "searcher" "comprises a 16-port Butler matrix coupled to 16 different WLAN wireless cards." *Id.* As will be shown below, Document C describes methods by which multiple signals are received simultaneously. EX-1009, 134 [C-1] ("The first beamformer, the 'searcher,' is for receiving only and uses a 16-port Butler matrix"), 136 [C-3] ("The signal received by the array elements will be the vector sum of signals arriving by many paths…the performance of different beamforming techniques [will depend on] the direction of arrival of signals from the desired and undesired users."). Similarly, the Little Joe Functional Specification in the '660 Provisional Application [A-46-A-47] confirms that each "WLAN radio on each Butler matrix port" "listen *simultaneously*." EX-1009, 51-52 ("All of the radios

listen simultaneously"). The written description requirement is evaluated through the perspective of one of ordinary skill in the art, and these disclosures demonstrate that the inventors had possession of the claimed invention. *Inphi Corp. v. Netlist, Inc*., 805 F.3d 1350, 1354-55 (Fed. Cir. 2015).

Document C discloses receiving a first and second signal transmission simultaneously from the same remote station (as an example, the "desired user"). Petitioners concede that "Document C further explains that the 'performance of different beamforming techniques… will depend on: the direction of arrival of signals from the desired and undesired users (which in turn depends on the locations of the scatterers)'." Pet. at 17. Indeed, Petitioners acknowledge that "Document C describes that '[t]he signal received by the array elements will be the vector sum of signals arriving by many paths.'" *Id.* Document C describes multiple examples of determining the direction of the arriving signals from the "desired users," such as through "Beamforming Methods" (e.g. summing of signals) which provide that "beamforming weights were computed in three ways." EX-1009, 140.

Document C describes that the "searcher" receivers use a "Butler matrix" with "N = 16 array elements to form N beams." EX-1009, 137. Moreover, the "beamforming application uses the signal strength information derived from packet receptions by the 'searcher' receivers." *Id.* This design enables the searcher receiver to receive multiple signals simultaneously via the receive beams.

One possible method uses the "'boresight' angle of the beam with the strongest signal as the angle of arrival and setting the weights to the complex conjugates of the signals that would be received due to a signal in this direction." *Id.*, 140. As described in Document C, this method employs one "beam with the strongest signal" as well as other beams resulting from the "conjugates… that would be received due to a signal in this direction." *Id.* These conjugate signals are "due" to the "beam with the strongest signal." *Id.* Thus, these multiple beams are received at the same time from the same device for purposes of evaluation in this method.

Similarly, Document C describes another possible method which "estimate[es] the [direction of arrival] by means of the 'center of mass' algorithm." EX-1009, 139. This method "estimate[s] the angle of arrival using a 'center of mass' calculation over the three beams which are centered on the beam with the strongest signal." EX-1009, 138. Document C explains that "signal powers are used as each beam's 'mass' and each beam's boresight direction as it 'position.'" EX-1009, 138. This is depicted in "Table 1," indicating the "adjacent beam levels (dB) versus angle of arrival (degrees)." EX-1009, 139. The table identifies multiple beams ("Beam -1," "Beam 0," and "Beam 1") from a single device which are necessarily received at the same time because they are "adjacent" to one another. *Id.* Further, these three beams are used in the same equation to "estimate the direction of arrival" allowing the formation of a beam. EX-1009, 139. Indeed, Document C confirms that

"Measuring the level of the second-strongest adjacent beam with an accuracy of about 2 dB would be sufficient to identify the direction of arrival to within 1 degree." EX-1009, 138.

Under either of these methods, Document C indicates that the signals will be received simultaneously because "scatterers will be moving and the phases and magnitudes will change over time." EX-1009, 136.

2. "wherein the set of weighting values is configured to be used by the remote station to construct one or more beam-formed transmission signals"

The next challenged element is "wherein the set of weighting values is configured to be used by the remote station to construct one or more beam-formed transmission signals." EX-1001, 33:48-34:2.

This challenged element is disclosed at Document C-4, which provides: "The beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13.'" EX-1009, 137. *See* EX-1002, 268-272.

Petitioner disputes that Document C discloses computing beamforming weights for use by "a particular client." EX-1009, 137. However, the disclosure at EX-1009, 137 shows that the set of weighting values (*i.e.,* the "complex weights") are configured to be used by the remote station ("[t]he beamforming algorithm

IPR2024-00613
Petitioner's Exhibit 1010
Page 000021

computes the beamforming weights for a particular client (identified by its wireless MAC address)") to construct one or more beam-formed transmission signals. EX-1009, 137.

As another example, Document C also discloses that the "beamforming weights for a particular client (identified by its wireless MAC address)" are transmitted to the client device that is running a "modified (polling) MAC protocol" installed on the client device. EX-1009, 137 [C-4]. Document C states that "the beamforming weights for a particular client (identified by its wireless MAC address)" are "stored in a table which is made available to the application running the modified (polling) MAC protocol on card 13." EX-1009, 137 [C-4]. The beamforming weights are then transmitted to the client device for use with its modified (polling) MAC protocol. Document C discloses that "the clients use a polling protocol rather than the standard random-access 802.11 MAC protocol," which "require[s] installing a 'shim' in the client's protocol stack." EX-1009, 135 [C-2]. Thus, the "beamforming weights for a particular client (identified by its wireless MAC address)" are "made available to the application running the modified (polling) MAC protocol on card 13" before being transmitted to the "clients [that] use a polling protocol rather than the standard random-access 802.11 MAC protocol," which "require[s] installing a 'shim' in the client's protocol stack." EX-1009, 135 [C-2], 137 [C-4].

Further, as a matter of law, the scope of the challenged element must include the disclosures in Document C cited by Applicant for this element during patent prosecution. *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1583 (Fed. Cir. 1996) ("In construing the claims we look to the language of the claims, the specification, and the prosecution history…In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. The claims, specification, and file history, rather than extrinsic evidence, constitute the public record of the patentee's claim…"). That is because the Applicant expressly defined the scope of the challenged element to include the disclosure at EX-1009, 137 (C-4). Accordingly, the limitation ("wherein the set of weighting values is configured to be used by the remote station to construct one or more beam-formed transmission signals," EX-1001, 33:48-34:2) must include within its scope the disclosure providing "[t]he beamforming algorithm computes the beamforming weights for a particular client (identified by its wireless MAC address) and stores it in a table which is made available to the application running the modified (polling) MAC protocol on 'card 13." EX-1009, 137.

IV. Institution Should Be Denied Under the *Fintiv* Factors

35 U.S.C. § 314(a) gives the Board discretion to deny institution because of efficiency considerations stemming from parallel proceedings on the same patent. *See NHK Spring Co. v. Intri-Plex Techs., Inc*., IPR2018-00752, Paper 8 (PTAB Sept.

12, 2018) (precedential, designated May 7, 2019) ("*NHK Spring*"). The PTAB recently promulgated six factors for determining whether discretionary denial due to efficiency considerations relating to parallel proceedings is appropriate (the "*Fintiv* factors"):

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple Inc., v. Fintiv, Inc., IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential, designated May 5, 2020) ("*Fintiv Order*") at 6; *Apple Inc., v. Fintiv, Inc.*, IPR2020-00019, Paper 15 (PTAB May 13, 2020) (order denying institution) (informative, designated July 13, 2020) (*"Fintiv ID"*) at 7–8. Here, all six *Fintiv* factors weigh against institution.

A. Parallel Proceedings

More than nine months ago, Patent Owner Vivato filed a complaint in U.S. District Court for the Western District of Texas against Petitioner Apple on June 16,

2021, and against Petitioner HP on July 1, 2021, asserting infringement of the '235 patent. *See* Exs. 2001-2002. This Petition for *inter partes* review was filed on January 7, 2022, more than six months after Vivato filed its complaint in the district court.

B. Factor 1 weighs against institution, as there is no stay in the district court now and no evidence exists that a stay may be granted in the future.

Factor 1 concerns whether the district court granted a stay or evidence exists that one may be granted if a proceeding is instituted. *Fintiv Order* at 6; *Fintiv ID* at 12. This factor weighs against institution.

Defendants have never moved for a stay, nor is there any indication that defendants will move for a stay. *See* Pet. at 59. Indeed, the district court granted the parties joint scheduling orders, and the parties have been complying with those orders, including exchanging infringement contentions, invalidity contentions, terms for construction, and meeting and conferring as part of the *Markman* process. *See* Ex. 2003-2004. At the time of the filing of this POPR, Petitioners filed their claim construction briefs in the Western District of Texas. By the time of the institution decision, the parties will have completed claim construction briefing, the court will have held a *Markman* hearing, and fact discovery will be underway.

IPR2024-00613
Petitioner's Exhibit 1010
Page 000025

Because there is no evidence that the WDTex case will be stayed, Factor 1 weighs against institution.

C. Factor 2 weighs against institution, as trial in the district court is scheduled to be completed before the FWD.

Factor 2 relates to proximity of the court's trial date to the Board's projected statutory deadline for a final written decision. *Fintiv Order* at 9; *Fintiv ID* at 12. The statutory deadline for the final written decision (FWD) for this IPR Petition would be in July 2023. Meanwhile, trial in the district court case is set in the June 2023 time frame, which is before the Final Written Decision would be due in this IPR proceeding (should it be instituted). *See* Exs. 2003-2004.

Under Factor 2, this weighs against institution. *See Fintiv Order* at 9 ("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*."). As *NHK Spring* explained, one of the primary objectives of the AIA was "to provide an effective and efficient ***alternative***" to parallel litigation. *NHK Spring* at 19–20 (quoting *General Plastic* at 16–17) (emphasis added).

The Petition's argument regarding Factor 2 (Pet. at 60) is baseless. For example, Petitioners' argument that "district court trial dates are delayed" is nothing more than a baseless assertion, as the parties agreed that trial should proceed in June 2023. Moreover, Petitioners' argument that "any comparison of a projected FWD

date against a potential trial date is, at best, speculative" is no longer speculative as the parties jointly filed the scheduling orders in the respective cases, and the court granted those scheduling orders without modification. *See* Exs. 2003-2004. In sharp contrast, Petitioners' arguments that "delays in trial schedule are likely to continue to occur" and "the unpredictability of the schedule" is purely speculative as there has been no indication by the court or the parties that any delay to the trial date will occur in this case. Indeed, both parties made adjustments to the claim construction schedule, yet "certif[ied] that this change in deadline is unopposed, does not change the date of any hearing, trial, or other Court date, and does not extend any deadline of a final submission that affects the Court's ability to hold a scheduling hearing, trial, or Court event." Exs. 2005-2006.

Here, this IPR cannot be an alternative to a trial in the district court set to occur before the FWD deadline. This alone is reason for the Board to exercise its discretion to deny institution. *Fintiv ID* at 13; *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00158, Paper 16 (PTAB May 20, 2020) at 9.

D. Factor 3 weighs strongly against institution, as claim construction proceedings in the district court case will be completed, with fact discovery to be under way before the date the institution decision is due.

Factor 3 relates to investment in the parallel proceeding by the court and the parties. *Fintiv Order* at 9; *Fintiv ID* at 14. Here, the parties and the district court have already (and will continue to) invest enormous effort and resources.

Importantly, this factor is judged from the date of the institution decision, which is expected to be in July 2022. *See Fintiv Order* at 9 (considering "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*") (emphasis added).

The district court cases were filed more than nine months ago, back in June and July 2021, and the parties have expended substantial resources since then, involving motions, claim construction proceedings to be complete by the time of the institution decision, and discovery. Petitioners note that they "have made diligent efforts and substantial investment in preparing this IPR petition" which includes only two of the more than forty charted references that are part of their invalidity contentions. Pet. at 62. It stands to reason that Petitioners have expended far more resources in the district court case regarding the issue of validity than they have here.

While the Petitioners were correct that "the district court litigation is in the very early stages and no Scheduling Order has been entered yet," this is no longer the case because the parties' agreed scheduling order has been adopted by the district court and the parties are well into the claim construction process. Specifically, the parties in the district court case have already exchanged infringement and invalidity

contentions, and begun the claim construction process, with the *Markman* hearing scheduled for June 16, 2022, more than a month before the FWD deadline here.

The *Apple v. Fintiv* case was in a similar procedural posture. In that case, the Board noted with respect to Factor 3 that "this factor weighs somewhat in favor of discretionary denial in this case." *Fintiv ID* at 14. Here, Factor 3 weighs even more heavily against institution because more work is likely to be expended by the time of the institution decision given the schedule of the district court case.

Accordingly, Factor 3 weighs strongly against institution.

E. Factor 4 weighs strongly against institution, as there is overlap between this IPR and the district court case.

Factor 4 relates to overlap between issues raised in the petition and in the parallel proceeding. *Fintiv Order* at 12; *Fintiv ID* at 13. This factor weighs against institution because the same claims and claim construction standard are at issue in both proceedings, and there is substantial overlap in invalidity theories and prior art.

For example, this IPR challenges the claims of the '235 patent based on two grounds, using Burke in Ground 1, and a combination of Burke with Shull in Ground 2. (Pet. at 2.)

Contrary to Petitioners' argument that "[i]t is… too early to evaluate overlap of issues," Petitioners' invalidity contentions confirm an overlap of issues by asserting Burke and Shull against the '235 patent alone and as a potential

obviousness combination. In the district court case, Petitioners provided invalidity contentions chart "Exhibit A-14," which allegedly charts Burke. Ex. 2007 ("Burke chart"). Moreover, Burke and Shull are also asserted as references in Petitioners' district court invalidity contentions as to obviousness. *See, e.g.,* Ex. 2008 (Excerpts of "Defendants' Preliminary Invalidity Contentions") at 10-11.

While Petitioners include a footnote regarding a reservation of rights to address overlap "e.g., with a stipulation that it will not pursue certain grounds in the district court litigation," they have yet to propose a stipulation and have made no representations of the scope of that stipulation. Thus, at the very least, it is unclear whether Petitioners' *potential* "stipulation" provides any additional concession on top of the estoppel that would apply under the law. *See* 35 U.S.C. § 315(e). Furthermore, Petitioners are wrong that their purported stipulation would "address any allegation of overlap" (Pet. at 63), as the district court is scheduled to conduct trial before the FWD would be due here.

Moreover, Petitioners' arguments that claims at issue here are not also at issue in the district court litigation overlooks the fact that claims 13-14 depend from claim 8, which is at issue here. Thus, there is overlap as to all issues involving claim 8, because they will necessarily impact the dependent claims.

Further, both this IPR and the district court proceedings are governed by the same *Phillips* claim construction standard. Thus, this IPR involves the same claim

construction standard, claims, invalidity theories, and prior art. *See NHK Spring* at 19–20. Here, just as in *NHK Spring*, "concerns of inefficiency and the possibility of conflicting decisions [are] particularly strong." *Fintiv Order* at 12. This factor weighs against institution.

F. Factor 5 weighs against institution, as Petitioners are Defendants in the parallel district court cases.

Factor 5 concerns whether the Petitioners and the Defendants in the parallel proceeding are the same parties. *Fintiv Order* at 13; *Fintiv ID* at 15. This factor weighs against institution because Petitioners Apple and HP are the defendants in the respective district court cases. *See XR Communications v. Apple Inc.*, W.D. Tex. Case No. 21-cv-00620-ADA; *XR Communications v. HP Inc.*, W.D. Tex. Case No. 21-cv-00694-ADA.

G. Factor 6 weighs in against institution.

Factor 6 relates to other circumstances that impact the Board's exercise of discretion. *Fintiv Order* at 14; *Fintiv ID* at 15. Here, Factor 6 supports discretionary denial for several reasons. First, having an IPR Final Written Decision issue after a district court trial is procedurally unfair to Patent Owner. For example, if the claims are confirmed in FWD, Petitioner would be bound by IPR estoppel and not be able to assert any invalidity grounds it raised or could have raised. But having a district court trial before the IPR FWD would eliminate that benefit—one to which Patent

IPR2024-00613
Petitioner's Exhibit 1010
Page 000031

Owner is statutorily entitled. Second, while Petitioners have indicated that "No formal claim constructions are necessary for this petition," they have nonetheless argued that five separate terms implicated in the claims at issue here should be construed in district court claim construction briefing. With the distinct overlap of issues between the district court and this IPR, Petitioners may attempt to argue for inconsistent claim constructions between the district court and the PTAB, or may make multiple attempts to reverse validity findings here and in the district court and/or reverse infringement findings in the district court. Third and most importantly, Petitioners' arguments on the merits suffer from several weaknesses. As described above, these arguments also show that Petitioners have not established a reasonable likelihood of success and provide independent bases for denying institution of this IPR.

H. Summary Regarding *Fintiv* Factors

Factor 1	Weighs against institution
Factor 2	Weighs against institution
Factor 3	Weighs strongly against institution
Factor 4	Weighs strongly against institution
Factor 5	Weighs against institution
Factor 6	Weighs against institution

In summary, all *Fintiv* factors weigh against institution and two factors weigh strongly against it. The district court trial is scheduled for before the final written decision in this IPR would be due. Further, the level of investment is high. The parties in the district court will have already completed claim construction proceedings, and by the time an institution decision issues in July 2023, the parties will have undertaken fact discovery in the district court case. Instituting review under these "facts and circumstances would be an inefficient use of the Board's resources." *NHK Spring* at 19–20. Under § 314(a) and the totality of the *Fintiv* factors, institution should be denied.

V. Conclusion

For the foregoing reasons, institution should be denied.

Respectfully submitted,

Dated: April 19, 2022

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 6,693 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

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

The undersigned hereby certifies that the above document was served on April 19, 2022, by filing this document through the Patent Trial and Appeal Board End to End system as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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