UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORP.
Petitioner

v.

ADAPTIVE SPECTRUM AND SIGNAL ALIGNMENT, INC.
Patent Owner

Case IPR2025-00492
Patent No. 7,593,458

PATENT OWNER'S DISCRETIONARY DENIAL BRIEF

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Patent Trial and Appeal Board "Interim Processes for PTAB Workload Management," issued March 26, 2025
2002	First Amended Docket Control [40], *Adaptive Spectrum and Signal Alignment, Inc. v. Charter Communications, Inc. et al.,* Case No. 2:24-cv-00124 (E.D. Tex.) filed October 4, 2024
2003	Frequently Asked Questions, USPTO.com, accessed on May 5, 2025 at: https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management?utm_campaign=subscriptioncenter&utm_content=&utm_medium=email&utm_name=&utm_source=govdelivery&utm_term=
2004	Plaintiff Adaptive Spectrum and Signal Alignment, Inc.'s Complaint for Patent Infringement [1], *Adaptive Spectrum and Signal Alignment, Inc. v. Charter Communications, Inc. et al.,* Case No. 2:24-cv-00124 (E.D. Tex.) filed January 19, 2024
2005	Second Amended Docket Control [140], *Adaptive Spectrum and Signal Alignment, Inc. v. Charter Communications, Inc. et al.,* Case No. 2:24-cv-00124 (E.D. Tex.) filed March 28, 2025
2006	*Left Intentionally Blank*
2007	John Cioffi – National Science and Technology Medals Foundation, Nationalmedals.com, accessed May 5, 2025 at https://nationalmedals.org/laureate/john-cioffi/
2008	Order Accepting Joint Stipulation and Motion to Dismiss All Claims and Defenses [144], Adaptive Spectrum and Signal Alignment, Inc. v. AT&T Inc. et al., Case No. 2:24-cv-00029-JRG-RSP (E.D. Tex.) filed April 14, 2025

I. Introduction

Pursuant to Acting Director Stewart's March 26, 2025 Memorandum titled "Interim Processes for PTAB Workload Management" (the "PTAB Workload Management Memo", EX2001), Patent Owner Adaptive Spectrum and Signal Alignment, Inc. ("Patent Owner" or "ASSIA") respectfully requests that the Director exercise discretion and deny institution of the Petition for *inter partes* review of U.S. Patent 7,593,458 ("the '458 patent").

The Board should deny institution of the Petition under 35 U.S.C. § 314(a). Until about three weeks ago, the '458 patent was asserted in a co-pending litigation (*Adaptive Spectrum and Signal Alignment, Inc. v. AT&T Enterprises, LLC, AT&T Mobility LLC, AT&T Mobility II LLC, and AT&T Services, Inc.*, No. 2:24-cv-00029-JRG-RSP) that was scheduled to begin trial **more than 11 months before the projected FWD deadline here**. EX2002, 1 (setting trial for September 22, 2025); EX2005, 1; EX2008, 1; EX1023, 1. While AT&T and Patent Owner recently settled this litigation, the factors that would have otherwise resulted in the majority of the *Fintiv* factors strongly favoring denial should still strongly weigh in favor of denial. EX2008, 1.

In particular, several PTAB Workload Management Memo considerations support Petition denial. Namely, the recent settlement establishes settled expectations between the parties that Patent Owner will no longer assert infringement of the ’458 patent against Petitioner’s customer and real party in interest, AT&T. Several other considerations enumerated in the PTAB Workload Management Memo also weigh in favor of denying institution of the Petition. For example, the length of time that the claims of the ’458 patent have been in force and certain compelling economic interests both strongly weigh in favor of discretionarily denying the Petition under § 314(a).

Finally, the merits of the Petition are weak as neither of Petitioner’s two grounds presents compelling reasons as to why the claims of the ’458 patent should be found unpatentable. For example, the combination of Rezvani and Cendrillon I fails to disclose or render obvious at least the claimed: (i) “*ordering the crosstalking lines based on a comparison between the known sequence of input symbols used to excite the crosstalking lines and the output data acquired from the primary line*;” (ii) “*generating a data quantity representative of the crosstalk coupling between the primary line and each of the crosstalking lines based on the ordering of the crosstalking lines*;” and (iii) “*sending instructions to one or more modems communicatively interfaced with the plurality of crosstalking lines in the* *channel based on the data quantity generated*."[1,2]

Each of these reasons illustrates that instituting review would be wasteful of the Board's, and the parties' resources. As such, the Director should exercise discretion to deny institution of the Petition.

II. The Petition Should be Denied Under 35 U.S.C. 314(a)

On March 26, 2025, Acting Director Stewart issued a Memorandum titled "Interim Processes for PTAB Workload Management" (the "PTAB Workload Management Memo", EX2001). The PTAB Workload Management Memo enumerated a number of "relevant considerations" for the parties to address when arguing for or against discretionary denial. These factors include:

- Whether the PTAB or another forum has already adjudicated the

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[1] For ease of reference, Patent Owner will identify claim language from the '458 patent using *italics*, and will identify language quoted from other exhibits using regular font.

[2] In accordance with the Board's April 25, 2025 guidance, Patent Owner does "not repeat [its] merits arguments verbatim," and instead "briefly explain[s] why the merits are relevant [herein]." EX2003, FAQs for Interim Processes for PTAB Workload Management, FAQ 12. As additionally set forth in the Board's April 25, 2025 guidance, Patent Owner also requests that the Director "consider the merits in the [forthcoming] merits briefing" as part of the discretionary denial analysis. *Id.*

validity or patentability of the challenged patent claims;

- Whether there have been changes in the law or new judicial precedent issued since issuance of the claims that may affect patentability;
- The strength of the unpatentability challenge;
- The extent of the petition's reliance on expert testimony;
- Settled expectations of the parties, such as the length of time the claims have been in force;
- Compelling economic, public health, or national security interests; and
- Any other considerations bearing on the Director's discretion.

Several of these considerations—including the settled expectations of the parties and certain compelling economic interests—support discretionary denial under 35 U.S.C. § 314(a). In fact, the Petition represents a prime example of when discretionarily denial should be used to meet the goals articulated in the PTAB Workload Management Memo: to "improve PTAB efficiency, maintain PTAB capacity to conduct AIA proceedings, … and promote consistent application of discretionary considerations in the institution of AIA proceedings." EX2001, 3.

A. Settled expectations of the parties

Several developments demonstrate the settled expectations of the parties with respect the '458 patent. As articulated in the PTAB Workload Management Memo, these settled expectations weigh in favor of the Director exercising discretion to deny the Petition.

1. Settled expectation that Patent Owner will no longer assert infringement of the ’458 patent against Petitioner’s customer and real party in interest, AT&T

Until about three weeks ago, the ’458 patent was asserted in a co-pending litigation (*Adaptive Spectrum and Signal Alignment, Inc. v. AT&T Enterprises, LLC, AT&T Mobility LLC, AT&T Mobility II LLC, and AT&T Services, Inc*., No. 2:24-cv-00029-JRG-RSP) that was scheduled to begin trial **more than 11 months before the projected FWD deadline here**. EX2002, 1 (setting trial for September 22, 2025); (setting trial for September 22, 2025); EX2005, 1; EX2008, 1; EX1023, 1. While AT&T and Patent Owner recently settled this litigation, the factors that would have otherwise resulted in the majority of the *Fintiv* factors strongly favoring denial should still strongly weigh in favor of denial in light of the considerations recently enumerated in the PTAB Workload Management Memo. EX2001, 2-3.

Indeed, the settlement means that there are now settled expectations between the parties that Patent Owner will no longer assert infringement of the ’458 patent against Petitioner’s customer and real party in interest, AT&T. *See* Pet., 67 (identifying AT&T Services Inc., AT&T Enterprises, LLC, AT&T Mobility LLC, and AT&T Mobility II LLC as real parties in interest). This understanding of settled expectations also extends to Petitioner as Petitioner admits in the Petition that the infringement positions in the previously co-pending litigation are largely based on Petitioner's products. *See id*., 64 (stating that Patent Owner's infringement positions were "largely accusing Nokia products").[3]

Thus, the well-settled expectation that Patent Owner will no longer assert infringement of the '458 patent against Petitioner's customer and real party in interest, AT&T, warrants discretionary denial of the Petition. Indeed, denial of the Petition will help "improve PTAB efficiency, maintain PTAB capacity to conduct AIA proceedings, … and promote consistent application of discretionary considerations in the institution of AIA proceedings." EX2001, 3.

2. Length of time the claims were in force, and Petitioner's prolonged and unexplained delay

A further relevant consideration identified in the PTAB Workload Management Memo was "[s]ettled expectations of the parties, such as the length of time the claims have been in force." EX2001, 2. Here, the claims of the '458 patent have been in force for over 15 and a half years. EX1001, (45). Petitioner's

[3] Despite the parties settlement of the co-pending litigation, and the settled expectations of what the settlement entails, Petitioner has refused Patent Owner's requests to move for termination of this proceeding. Petitioner's refusal evidences its disregard for the Board's resources that would be required to continue this proceeding despite the underlying dispute being resolved.

customer and real party in interest, AT&T, was also provided with actual notice of the ’458 patent and Patent Owner’s infringement allegations relating thereto over a year and half ago. EX2004, ASSIA-AT&T Complaint, ¶¶42, 59-66. Despite this notice, Petitioner **waited over a year** after the filing of the district court complaint in the previously co-pending litigation (and a mere one day before AT&T’s statutory bar date under 35 U.S.C. § 315(b)), and **15 months** after AT&T was provided with actual notice of the ’458 patent to file the instant Petition. This was also **over eight months** after infringement contentions were served in the previously co-pending litigation. Taking more than a year from the filing of the district court complaint to challenge a reasonable number of claims (11) is not diligent. Petitioner does not provide any explanation for its delay in filing the Petition.

Under these circumstances, the Petitioner’s delay in filing this IPR is a further factor that favors discretionary denial. *Cf. Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, 11 (PTAB Mar. 20, 2020) (“If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution under *NHK*.”); *Hulu, LLC v. Piranha Media Distribution, LLC*, IPR2024-01252, Paper 27, 3 (PTAB Apr. 17, 2025) (even when “the *Fintiv* framework does not fit neatly with the circumstances of [the] case, …

the *Fintiv* framework emphasizes efficiency concerns, and *Fintiv* encourages the parties to explain the impact of other facts and circumstances that exist in their proceeding on efficiency and integrity of the patent system.”).

B. Compelling economic interests

Compelling economic interests further weigh in favor of the Director exercising discretion to deny the Petition. For example, the district court, Patent Owner, and Petitioner’s customer and real party in interest, AT&T, already made significant economic investment in the previously co-pending litigation before it was settled just three weeks ago. Specifically, the district court already conducted a Claim Construction Hearing on March 19, 2025 and issued a Claim Construction Order on April 1, 2025, the parties already exchanged invalidity and infringement contentions, and were a mere month away from the completion of fact discovery before reaching a settlement. EX2005, 1, 3-4.

Additionally, Patent Owner and AT&T expended significant economic investment in their ultimately successful efforts to reach a settlement agreement. These investments, and the fact that the parties were able to resolve their dispute prior to the institution deadline for this proceedings should not be diminished, nor should such efforts to reach a settlement be deterred.

Therefore, the significant investments by the parties and the district court to-date represent compelling economic interests that weigh in favor of discretionarily denying the Petition.

III. The '458 Patent Technology

More than twenty years ago, the '458 patent inventor Dr. John M. Cioffi, who is often referred to as the "father of DSL" and a National Medal of Technology and Innovation Awardee for helping to invent digital subscriber line technology[4], invented innovations embodied by the '458 patent claims. These innovations improved broadband communications through, for example, the utilization of "[o]perational data … to determine the [far-end crosstalk] FEXT interference induced by one line into the other DSL line." EX1001, Abstract. Such innovations were important to the drastic expansion of digital subscriber line (DSL) technologies, which was still in its infancy at the time of invention.

[4] National Science & Technology Medals Foundation, John Cioffi, at https://nationalmedals.org/laureat/john-cioffi/ (last accessed Jan. 21, 2025) ("For advancements that helped bring high-speed Internet to the world. The digital subscriber line that he helped invent ignited the growth of the digital age, vastly increasing people's access to information, reshaping the global economy, and transforming how we work, communicate, and find community.") (EX2007).

A. Background that led to the ’458 patent

The inventors of the ’458 patent understood that, prior to the ’458 patent, DSL systems had been governed by “static management rules” and the “[u]nreasonable static limits on and practices in DSL operation ha[d] frustrated efforts to improve service to users and to increase profitability and ubiquity for operators.” EX1001, 1:51-57. One such example is crosstalk, which “dominates the achievable performance of DSL systems.” *Id.*, 1:61-63. Before the ’458 patent, crosstalk models used by American National Standards Institute were based on “1% worst-case coupling functions.” *Id.*, 1:64-67. Accordingly, it was important to measure crosstalk, especially far-end crosstalk (FEXT) interference, which “allows that interference to be removed from signals sent on various DSL lines.” *Id.*, 2:12-16. Prior to the ’458 patent, “[a] variety of systems, techniques and methods ha[d] been developed for measuring and removing FEXT interference.” *Id.* However, the inventors of the ’458 patent recognized that “a simple and accurate way to determine and measure FEXT between two DSL lines, without disrupting normal operation of the DSL system, would represent a significant advancement in the art.” *Id*, 2:17-24. Additionally, permitting measurement of FEXT interference in a DSL system “from one side of the DSL loops likewise would represent a significant advancement in the art.” *Id.*

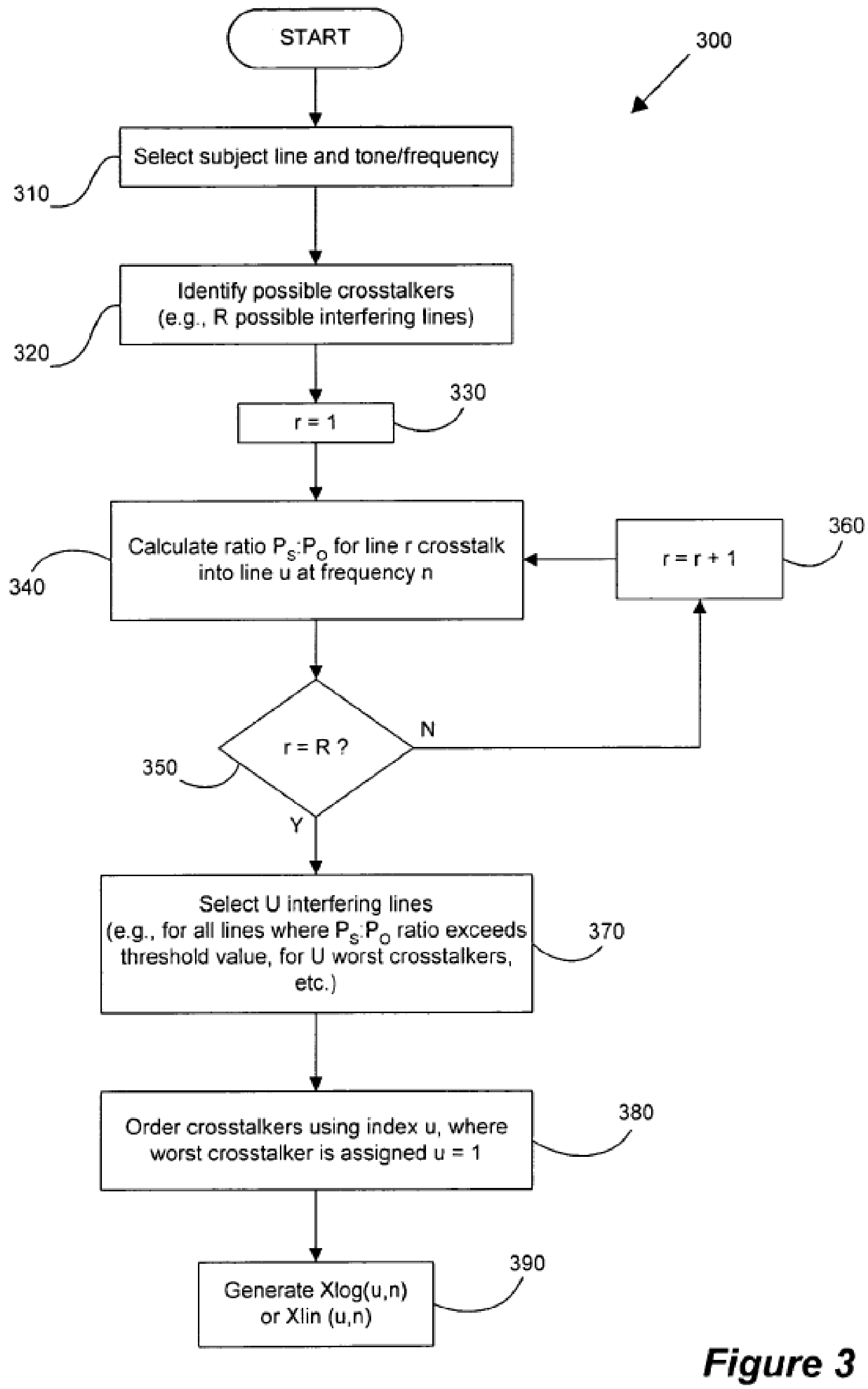
B. Innovations of the ’458 patent

The ’458 patent specification discloses multiple innovations with respect to determining information related to FEXT interference between two DSL lines. *Id.*, 1:26-32. In one embodiment, the ’458 patent discloses “utiliz[ing] data that is readily available at the upstream end of a pair of DSL loops to determine the FEXT interference.” *Id.*, 2:29-33. In particular, the FEXT interference is calculated using near-end crosstalk (NEXT) interference and the downstream channel transfer function of one of the loops. *Id.*, 2:33-42. Both the NEXT interference and a line’s downstream transfer function “are readily available at the upstream end of the lines.” *Id.*, 2:42-44. The ’458 patent also discloses providing crosstalk information to various components of a DSL or other communication systems to “enhance system operation, for example to reduce crosstalk between lines in a common binder.” *Id.*, 2:48-53, 3:59-4:8.

Specifically, the ’458 patent discloses that crosstalk interference information (e.g., FEXT interference) is useful for “one-sided vectored DSL systems.” *Id.*, 4:3-8. The ’458 patent describes that users’ lines in a vectored DSL system are co-terminated in locations such as Central Offices (COs) so that they can be operated “in a coordinated fashion, such as vectoring.” *Id.*, 7:34-50. In the vectored DSL system, “a common clock and processor” is used to co-generate multiple lines’ transmit signals for "downstream vectoring," and to co-receive multiple lines' signals for "upstream vectoring." *Id*.

The '458 patent describes two functions Xlog(u,n) or Xlin(u,n) to represent crosstalk interference information. *Id.*, 4:3-5. Xlog(u,n) is defined as "the ratio of (1) a line u's source power into a matched load of 100 Ohms when no binder is present to (2) the power at the output of the subject line when line u is excited with the same source and the binder is present." And "Xlin(u,n) is the linear equivalent of Xlog(u,n)." *Id.*, 2:53-60, 8:65-9:4.

Importantly, the index u in Xlog(u,n) is "specified in terms of the degree." For example, u=1 is assigned as "the index of the impinging crosstalker that has largest crosstalk" and u=2 is assigned as the index of the impinging crosstalker that has second largest crosstalk, *Id.*, 9:8-25. Essentially, Xlog(u,n) for any line n represents the "insertion loss coupling into line n by up to U other crosstalkers" "at any frequency." *Id.*, 9:52-60.


START
300
Select subject line and tone/frequency
310
Identify possible crosstalkers
(e.g., R possible interfering lines)
320
r = 1
330
Calculate ratio $P_S:P_O$ for line r crosstalk into line u at frequency n
340
r = r + 1
360
r = R ?
350
N
Y
Select U interfering lines
(e.g., for all lines where $P_S:P_O$ ratio exceeds threshold value, for U worst crosstalkers, etc.)
370
Order crosstalkers using index u, where worst crosstalker is assigned u = 1
380
Generate Xlog(u,n)
or Xlin (u,n)
390
Figure 3

EX1001, FIG. 3.

The ’458 patent describes an exemplary method for generating Xlog(u,n) in Figure 3. *Id.*, 11:17-19, FIG. 3. At step 310, “a subject communication line (for example, a DSL line) and tone/frequency are selected.” *Id.*, 11:17-20. At step 320, for the subject line, “[p]ossible crosstalking lines are identified,” for example, “R such potential crosstalkers are identified for evaluation.” *Id.*, 11:20-26. For each potential crosstalker, the ratio Ps:Po for line r is calculated at 340. *Id.,* 11:26-29. The ’458 patent explains that Ps is line r’s source power into a matched load of 100 Ohms when no binder is present, and Po is the power at the output of the subject line when line r is excited with the same source power and the binder is present. *Id.*, 8:65-9:4. Once all R of the potential crosstalkers’ ratio have been calculated, “the U worst crosstalkers can be selected” at 370. *Id.*, 11:33-38. At 380, “the crosstalkers are ordered according to the degree of crosstalk they induce in the subject line.” *Id.,* 11:38-41. Finally at 390, Xlog(u,n) is generated by assigning the worst crosstalker with index u=1, assigning the second worst crosstalker with index u=2, and so on. *Id.*, 11:41-45. Once generated, Xlog(u,n) and/or Xlin(u,n) can be used in the DSL system to assist users and operators in improving system performance. *Id.*, 11:43-45.

IV. The Combination of Rezvani and Cendrillon I Fails to Disclose All of the Features of the Challenged Claims

The Director should use discretion to deny the Petition for each of the reasons discussed above, and for the additional reason that the merits of the

Petition are weak.[5] Indeed, both grounds in the Petition are deficient because Petitioner did not establish a reasonable likelihood that the combination of Rezvani and Cendrillon I renders the challenged claims obvious. As discussed briefly below, Petitioner's Grounds 1 and 2 fail for at least the following reasons:

1. The combination of Rezvani and Cendrillon I, fails to disclose, or render obvious, "*ordering the crosstalking lines based on a comparison between the known sequence of input symbols used to excite the crosstalking lines and the output data acquired from the primary line*," as recited in independent claim 1;
2. The combination of Rezvani and Cendrillon I fails to disclose, or render obvious, "*generating a data quantity representative of the crosstalk coupling between the primary line and each of the crosstalking lines based on the ordering of the crosstalking lines*," as also recited in independent claim 1; and
3. The combination of Rezvani and Cendrillon I fails to disclose, or render obvious, "*sending instructions to one or more modems communicatively interfaced with the plurality of crosstalking lines*

[5] In accordance with the Board's April 25, 2025 guidance, Patent Owner does "not repeat [its] merits arguments verbatim," and instead "briefly explain[s] why the merits are relevant [herein]." EX2003, FAQs for Interim Processes for PTAB Workload Management, FAQ 12.

in the channel based on the data quantity generated," as further recited in independent claim.

While these bases for denial of institution are discussed briefly below, the full scope of these arguments are included in Patent Owner's forthcoming merits brief. In accordance with the Board's April 25, 2025 guidance, Patent Owner also requests that the Director "consider the merits in the [forthcoming] merits briefing" as part of the discretionary denial analysis. EX2003, FAQs for Interim Processes for PTAB Workload Management, FAQ 12.

A. The combination of Rezvani and Cendrillon I fails to disclose, or render obvious, "*ordering the crosstalking lines based on a comparison between the known sequence of input symbols used to excite the crosstalking lines and the output data acquired from the primary line*," as recited in independent claim 1

Petitioner fails to show that the combination of Rezvani and Cendrillon I discloses, or renders obvious, "*ordering the crosstalking lines based on a comparison between the known sequence of input symbols used to excite the crosstalking lines and the output data acquired from the primary line*," as recited in independent claim 1. The Petition advances two theories as to why the applied references render obvious this claim feature—one based on Rezvani alone, and a second based on the combination of Rezvani and Cendrillon I. *See* Pet., 22-25. However, both theories fail for at least one distinct reason: neither Rezvani nor Cendrillon I disclose the claimed "*ordering the crosstalking lines based on* ***a comparison*** *between the known sequence of input symbols … and the output data*."

Turning first to Petitioner's theory that rests on Rezvani alone. Petitioner first alleges that "Rezvani teaches that the injected training sequences of known input symbols excite the crosstalking lines, and crosstalk between the selected subscriber line and the remaining subscriber lines is identified by detecting the same known training sequence of input symbols in the output of a selected subscriber line after having been affected by crosstalk from the remaining subscriber lines." Pet., 22. Thus, Petitioner takes the position that Rezvani's "training sequences of known input symbols" disclose that claimed "*known sequence of input symbols*," and that Rezvani's "output of a selected subscriber line" discloses the claimed "*output data acquired from the primary line*."

Petitioner then alleges that once Rezvani's "output data is accumulated for the selected subscriber line, '***the interferer channels can be ranked in order of importance*** within each sub-channel.'" Pet., 23 (emphasis in original) *citing* EX1005, 8:42-45. Subsequently, Petitioner concludes that "[a] POSITA would have understood that Rezvani's ranking in 'order of importance' for a selected subscriber line may be based on the amount of crosstalk [expressed in terms of signal strength] injected into the selected subscriber line from the remaining subscriber lines, as lines that cause more crosstalk would have been more important to cancel crosstalk on." Pet., 23-24 (also alleging that "the amount of crosstalk interference is expressed in terms of signal strength").

As explained in further detail in Patent Owner's forthcoming merits briefing, Petitioner's first theory is flawed, because Rezvani is clear that its process for ranking the channels in "order of importance" is based merely on the output of a selected subscriber line (e.g., the claimed "*output data acquired from the primary line*"), as opposed to being based on "***a comparison*** *between the known sequence of input symbols … and the output data*," as required by the claims. *See* Pet., 23-24; *see also* EX1005, 7:23-57, 8:42-45. Rezvani makes no mention of such a comparison being done, nor does Rezvani explain why such a comparison would be useful in its system.

Turning now to Petitioner's second theory: that Rezvani in combination with Cendrillon I discloses or renders obvious the claimed "*ordering the crosstalking lines based on* ***a comparison*** *between the known sequence of input symbols … and the output data*." Petitioner alleges that Cendrillon I cures any deficiencies in Rezvani, because Cendrillon I discloses "partial crosstalk crosstalk [*sic*] cancellation which employs line selection only." Pet., 25 *citing* EX1006, 4. Specifically, Petitioner alleges that Cendrillon I teaches choosing "the subset of lines at the CO when detecting user *n*, '***to contain the largest crosstalkers*** of user *n* on tone *k*, where 'the indices of the crosstalkers of user *n* on tone *k* [are] ***sorted in order of crosstalk strength***.'" Pet., 25 (emphasis in original) *citing* EX1006, 3. But similar to Rezvani, Cendrillon I also discloses that the sorting/ordering of its lines is based merely on the output of a selected line (e.g., the claimed "*output data acquired from the primary line*"), as opposed to being based on "***a comparison*** *between the known sequence of input symbols ... and the output data*," as required by the claims. Cendrillon I makes no mention of such a comparison being done, nor does Cendrillon I explain why such a comparison would be useful in its system.

Therefore, the combination of Rezvani and Cendrillon I does not disclose, or render obvious, "*ordering the crosstalking lines based on a comparison between the known sequence of input symbols used to excite the crosstalking lines and the output data acquired from the primary line*," as recited in independent claim 1. For at least these reasons, independent claim 1 is patentable over these applied references. Dependent claims 2, 4-5, 7, 9-12, and 14-15 are likewise patentable at least for their dependencies from independent claim 1.

B. The combination of Rezvani and Cendrillon I fails to disclose, or render obvious, "*generating a data quantity representative of the crosstalk coupling between the primary line and each of the crosstalking lines based on the ordering of the crosstalking lines*," as recited in independent claim 1

Petitioner also fails to show that the combination of Rezvani and Cendrillon I discloses, or renders obvious, "*generating a data quantity representative of the crosstalk coupling between the primary line and each of the crosstalking lines based on the ordering of the crosstalking lines*," as recited in independent claim 1.

The Petition again advances two theories as to why the applied references render obvious this claim feature—one based on Rezvani alone, and a second based on the combination of Rezvani and Cendrillon I. *See* Pet., 25-29. However, these theories fail for multiple reasons.

Turning first to Petitioner's theory that rests on Rezvani alone. Petitioner alleges that "Rezvani teaches generating a data quantity in the form of an interference matrix that 'shows for each sub-channel on each subscriber line the relative interference in terms of noise injected from all other subscriber lines.'" Pet., 26 *citing* EX1005, 14:47-51. However, as explained in further detail in Patent Owner's forthcoming merits briefing, Petitioner's mapping of Rezvani's interference matrix to the claimed "*data quantity*" is flawed. While, Rezvani does teach that "the interference channels can be ranked in order of importance within each sub-channel," Rezvani is clear that such ordering only occurs "[o]nce the information [the interference determination] is recovered for any given line." EX1005, 8:33-44. In other words, the ordering of the interference channels cannot occur until **after** the interference matrix, indicating the level of interference on each channel, is calculated. *Id.* Petitioner even confirms as much. *See* Pet., 16 (once calculated, "Rezvani's interference matrix could be used to determine the highest contributors of crosstalk interference"). Therefore, Rezvani's interference matrix (e.g., the claimed "*data quantity*") is not "*based on the ordering of the* *crosstalking lines*," as required by the claims.

Turning now to Petitioner's second theory: that Rezvani in combination with Cendrillon I discloses or renders obvious the claimed "*generating a data quantity … based on the ordering of the crosstalking lines*." Petitioner alleges that Cendrillon I cures any deficiencies in Rezvani, because Cendrillon I discloses a channel transfer matrix H_K (e.g., the claimed "*data quantity*") "comprising $h_k^{(n,m)}$ values which represent the crosstalk effect from user *m* into user *n*." Pet., 28 *citing* EX1006, 1. Cendrillon I also discloses "that partial crosstalk cancellation is achieved by applying crosstalk cancellation only on '***the largest crosstalkers*** of user *n* on tone *k*, where 'the indices of the crosstalkers of user *n* on tone *k* [are] ***sorted in order of crosstalk strength***.'" Pet., 28 (emphasis in original) *citing* EX1006, 3. However, Cendrillon I is flawed for the same reasons as Rezvani above—i.e., the sorting/ordering of the crosstalkers in Cendrillon I only occurs **after** the channel transfer matrix H_K is generated. Thus, like Rezvani, Cendrillon I's channel transfer matrix H_K (e.g., the claimed "*data quantity*") is not "*based on the ordering of the crosstalking lines*," as required by the claims.

As such, the combination of Rezvani and Cendrillon I does not disclose, or render obvious, "*generating a data quantity representative of the crosstalk coupling between the primary line and each of the crosstalking lines based on the ordering of the crosstalking lines*," as recited in independent claim 1. For at least these reasons, independent claim 1 is patentable over these applied references. Dependent claims 2, 4-5, 7, 9-12, and 14-15 are likewise patentable at least for their dependencies from independent claim 1.

C. The combination of Rezvani and Cendrillon I fails to disclose, or render obvious, "*sending instructions to one or more modems communicatively interfaced with the plurality of crosstalking lines in the channel based on the data quantity generated*," as recited in independent claim 1

Petitioner also fails to show that the combination of Rezvani and Cendrillon I discloses, or renders obvious, "*sending instructions to one or more modems communicatively interfaced with the plurality of crosstalking lines in the channel based on the data quantity generated*," as recited in independent claim 1. As discussed above, the combination of Rezvani and Cendrillon I fails to disclose, or renders obvious, the claimed "*generating a data quantity*." For at least these same reasons, the combination of Rezvani and Cendrillon I also fails to disclose, or renders obvious, "*sending instructions to one or more modems … **based on the data quantity generated***," as recited in independent claim 1. Therefore, independent claim 1 is patentable over these applied references for this reason as well. Dependent claims 2, 4-5, 7, 9-12, and 14-15 are likewise patentable at least for their dependencies from independent claim 1.

V. Conclusion

Each of the issues discussed above independently supports discretionary denial. Considered together, they present a compelling case for the Director to exercise discretion and deny institution of this untimely and inefficient Petition in accordance with § 314(a). Accordingly, Patent Owner respectfully requests that the Director discretionarily deny institution of the Petition.

Respectfully submitted,

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CERTIFCATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S DISCRETIONARY DENIAL BRIEF**, has 4,674 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word 2016.

Respectfully submitted,

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CERTIFICATION OF SERVICE

The undersigned hereby certifies that the above-captioned **PATENT OWNER'S DISCRETIONARY DENIAL BRIEF**, and Exhibits 2001-2005, and 2007-2008 were served electronically in their entireties on May 6, 2025, upon the following parties by email:

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