

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JUNIPER NETWORKS, INC.,
Petitioner

v.

MONARCH NETWORKING SOLUTIONS LLC
Patent Owner

Case IPR2024-00485
U.S. Patent No. 8,451,844

**PATENT OWNER’S SUR-REPLY
TO PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,451,844**

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Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Owner's Exhibit List

Exhibit	Description
EX2001	RFC 2893 – “Transition Mechanisms for IPv6 Hosts and Routers” (Aug. 2000), available at https://datatracker.ietf.org/doc/rfc2893/
EX2002	RFC 1918 – “Address Allocation for Private Internets” (Feb. 1996), available at https://datatracker.ietf.org/doc/rfc1918/
EX2003	Excerpts from Newton's Telecom Dictionary (11th ed., 1996)
EX2004	Excerpts from IBM Dictionary of Computing (1993)
EX2005	Printout of https://www.ietf.org/staging/
EX2006	Printout of https://www.ietf.org/staging/draft-xli-ivi-00-7430-cancelled.txt
EX2007	Screenshot of Internet Archive history for https://www.ietf.org/ (2008 year selected), available at https://web.archive.org/web/20080801000000*/www.ietf.org
EX2008	Screenshot of Internet Archive history for https://www.ietf.org/staging/ , available at https://web.archive.org/web/20240000000000*/https://www.ietf.org/staging/
EX2009	2008 IEEE Global Telecommunications Conference Proceedings Title Page, available at https://ieeexplore.ieee.org/xpl/conhome/4697774/proceeding
EX2010	Screenshot of Internet Archive history for www3.ietf.org/proceedings/staging , available at https://web.archive.org/web/20080515000000*/www3.ietf.org/proceedings/staging
EX2011	June 13, 2008, Capture of http://www3.ietf.org/proceedings/ , available at https://web.archive.org/web/20080613195553/www3.ietf.org/proceedings/
EX2012	October 4, 2008, Capture of http://www3.ietf.org/proceedings/ , available at https://web.archive.org/web/20081004152450/www3.ietf.org/proceedings/
EX2013	<i>Curriculum Vitae</i> of Dr. William Mangione-Smith
EX2014	Deposition notice of Alexa Morris
EX2015	Declaration of Dr. William Mangione-Smith in Support of Patent Owner's Response
EX2016	Deposition Transcript of Alexa Morris, dated October 22, 2024
EX2017	Deposition Transcript of Ron Bonica, dated October 24, 2024

Table of Contents

I. Introduction.....	1
II. All Grounds: The Reply Does Not Remedy The Failure To Show That Li Teaches Separate Domains.	2
A. Different “Domains” Are Controlled By Different Entities.	3
B. Li’s Figure 7 Is A Single Domain.....	4
C. Petitioner Cannot Rely on the Embodiments of Figures 8, 10, and 11.	7
D. Petitioner Did Not Shown that Figures 8, 10, and 11 Render the Claims Obvious.	9
III. Ground 1: Li in View of Li-2 Does Not Render the Claims Obvious.	11
A. Petitioner Fails to Establish that Li-2 is Prior Art.	11
B. A POSITA Would Not Have Been Motivated to Combine Li and Li-2.	13
1. Li and Li-2 Address Different Communication Problems.	13
2. Li-2 Is Not an Extension of Li.	14
3. Petitioner Relied on Non-Prior Art References.	14
IV. Ground 2: Petitioner Cannot Rely on Simultaneous Invention.....	14
A. Petitioner Did Not Show its Exhibits are the Same Invention as the ’844 Patent.....	15
B. The Board Should Not Consider Petitioner’s New Arguments.....	16
C. The Reply Does Not Establish Simultaneous Invention.	17
V. Ground 3: Wu Does Not Teach a Destination Port Number, and a POSITA Would Not Combine Li and Wu.....	18
A. Wu Does Not Describe The Claimed Port Number.....	19
B. Petitioner’s Arguments Misrepresent the Teachings of Wu.....	20
C. A POSITA Would Not Have Been Motivated to Combine Wu’s Stateful System With Li’s Stateless System.	22
VI. Conclusion	24

Table of Authorities

Cases

<i>Acceleration Bay, LLC v. Activision Blizzard, Inc.</i> , 908 F.3d 765 (Fed. Cir. 2018)	11, 12, 13
<i>Ariosa Diagnostics v. Verinata Health, Inc.</i> , 805 F.3d 1359 (Fed. Cir. 2015)	8
<i>Belden Inc. v. Berk-Tek LLC</i> , 805 F.3d 1064 (Fed. Cir. 2015)	19
<i>Cisco Systems, Inc. v. C-Cation Techs., LLC</i> , IPR2014-00454, Paper 12 (PTAB Aug. 29, 2014).....	16
<i>Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.</i> , 800 F.3d 1375 (Fed. Cir. 2015)	8
<i>Geo M. Martin Co. v. All. Mach. Sys. Int’l LLC</i> , 618 F.3d 1294 (Fed. Cir. 2010)	15
<i>Google LLC v. Hammond Dev. Int’l, Inc.</i> , 54 F.4th 1377 (Fed. Cir. 2022)	19
<i>Immunex Corp. v. Sandoz Inc.</i> , 964 F.3d 1049 (Fed. Cir. 2020)	15
<i>In re Kubin</i> , 561 F.3d 1351 (Fed. Cir. 2009)	23
<i>In re Magnum Oil Tools</i> , 829 F.3d 1364 (Fed. Cir. 2016)	7
<i>Kerry Grp. Servs. Int’l Ltd. v. Fla. Food Prods., LLC</i> , No. 2023-2092, 2025 U.S. App. LEXIS 4139 (Fed. Cir. Feb. 24, 2025).....	11
<i>MModal LLC v. Nuance Communications, Inc.</i> , 846 F. App’x 900 (Fed. Cir. 2021)	8, 9
<i>Regents of the Univ. of Cal. v. Broad Inst., Inc.</i> , 903 F.3d 1286 (Fed. Cir. 2018)	15

Statutes

35 U.S.C. § 312	11
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Other Authorities

MPEP 2143.01(VI)	22
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Regulations

37 C.F.R. § 42.23	1
37 C.F.R. § 42.6	16

I. Introduction

Patent Owner Monarch Networking Solutions LLC (“Monarch” or “Patent Owner”) respectfully requests that the Board affirm the validity of U.S. Patent No. 8,451,844 (“the ’844 Patent”) because petitioner Juniper Networks, Inc. (“Juniper” or “Petitioner”) has not carried its burden to establish invalidity of claims 1-10 of the ’844 Patent.

Recognizing that the primary embodiment (Li’s Figure 7) does not teach the claimed separate IPv4 and IPv6 domains, Petitioner tries to define “domain” so broadly it renders the term meaningless. With this definition, Petitioner argues that Li’s Figure 7 describes an “inter-domain” system, despite Li’s express teachings otherwise. Petitioner then violates 37 C.F.R. § 42.23 by newly arguing that other embodiments of Li render the claims obvious. These arguments are impermissible, and Petitioner still failed to explain how these embodiments render the claims obvious—a complete failure to carry its burden of proof.

With respect to Ground 1, Petitioner contends that since Li-2 was uploaded to an internet directory, it was publicly available as prior art before the priority date of the ’844. Petitioner’s argument ignores the law, which requires that a POSITA be able to locate the document. The evidence shows that there was no meaningful way to search the directory containing hundreds of other documents in the hope of identifying Li-2.

Ground 1 also fails because a POSITA would not have combined Li with Li-2. The two documents are directed to different networking challenges, Li on connecting between subnets, and Li-2 on connecting a subnet to the internet. These

systems present different challenges that require different solutions. Even though the two documents share an author, a POSITA would not have been motivated to combine the references.

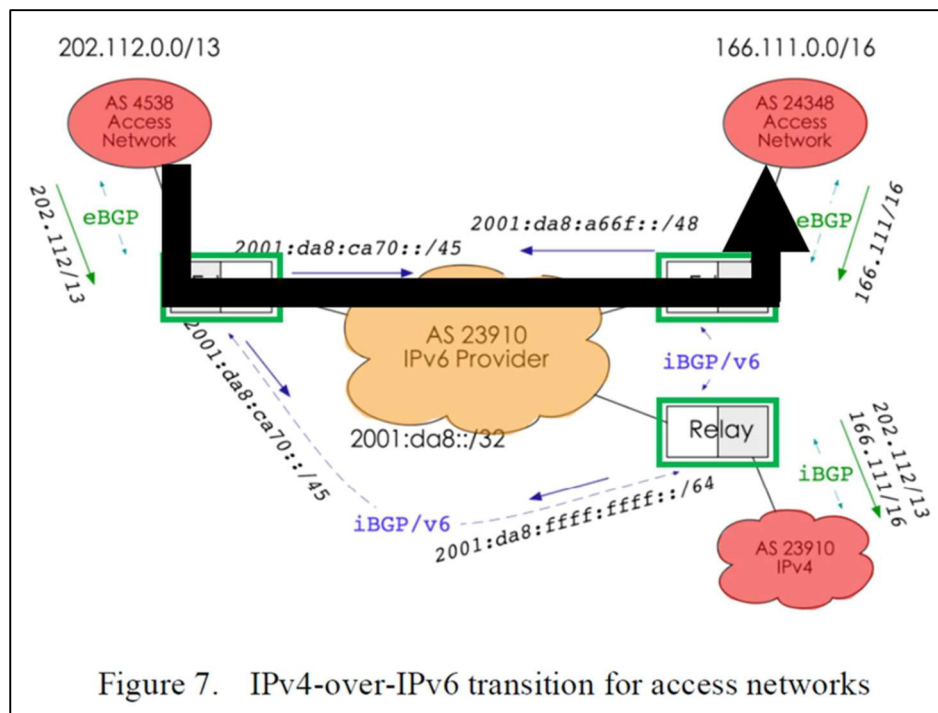
In Ground 2, Petitioner still fails to properly apply the concept of “simultaneous invention.” Petitioner has failed to show, and cannot show, that the documents it relies on are the same invention as the invention of the ’844 Patent. Instead, Petitioner attempts to use alleged evidence of simultaneous invention as evidence of obviousness, rather than indicia of obviousness. These arguments attempt to show obviousness without proving the existence of every claim element in the prior art, which is a threshold question for obviousness.

With respect to Ground 3, the Petition and Reply fail to establish that a POSITA would combine Li with the teachings of Wu. Petitioner misreads and misquotes Wu in an attempt to twist its teachings to purportedly read onto the claims of the ’844 Patent. Properly understood, Li in view of Wu does not render the claims obvious.

For these reasons, the Reply fails to remedy the failures in the Petition, and the validity of the ’844 Patent should be confirmed.

II. All Grounds: The Reply Does Not Remedy The Failure To Show That Li Teaches Separate Domains.

As Patent Owner explained in its response (“POR”), the ’844 Patent claims all require that a data packet is sent or received between two separate domains, one an IPv4 domain and the other an IPv6 domain. POR 21-22. For all grounds, the Petition points to the embodiment of Li’s Figure 7 for these claim elements:



Pet. at 17 (annotating EX1037 Fig. 7). As Patent Owner explained, the transmission illustrated above occurs within a single domain and cannot render the claims obvious. POR 24-27.

Petitioner's reply argues that the "stub autonomous systems" AS 4538 and AS 24348 are "different domains." Reply 4-7. Under a proper understanding of Li's disclosure, those stub autonomous systems are part of a single domain controlled by a single entity. Petitioner argues in the alternative that other embodiments of Li teach the challenged claims. These arguments are both improper and fail to establish obviousness.

A. Different "Domains" Are Controlled By Different Entities.

First Petitioner contends that two "domains" can be separate even if controlled by a common entity. Reply, 3-4. Petitioner acknowledges that the '844 Patent defines "domain" as a "telecommunication network administered by an operator."

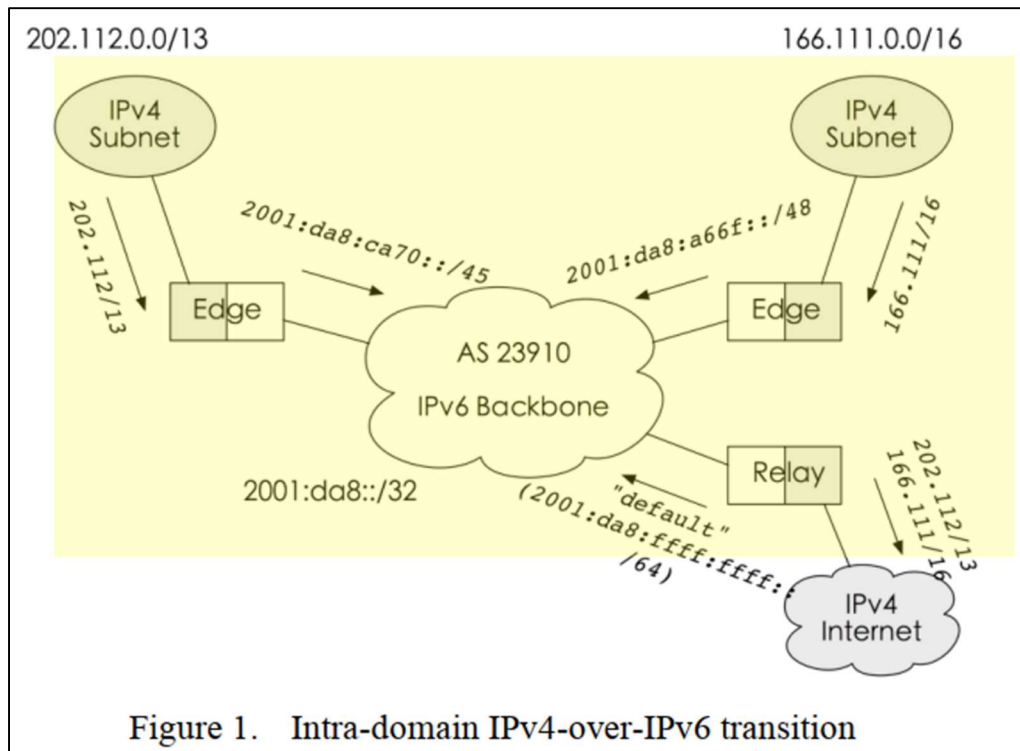
Reply, 3-4. As Patent Owner explained, this means a domain is “a network or subnetwork and its address space that are under common control” and different domains must be administered by different operators. POR, 20-21. Petitioner instead argues for an unreasonably broad definition of domain: “a group of computers that *merely* share something in common.” Reply 4 (quotation omitted, emphasis added). This definition would render the domain elements a nullity.

For example, Claim 1 recites “receiving a data packet from an IPv4 domain in an IPv6 domain....” EX1001, 14:29-30. Applying Petitioner’s “group of computers” would broaden the claim to include receiving a packet from an IPv4 subnet in an IPv6 subnet or receiving packets between any other “group of computers” so long as they use different IP standards. This ignores the teaching of the ’844 Patent, which distinguishes between subnetworks and domains. *See id.* at 6:25-59 (discussing subnetworks in the context of IPv6 address prefixes). Petitioner’s definition runs counter to these express teachings of the ’844 Patent and should be rejected.

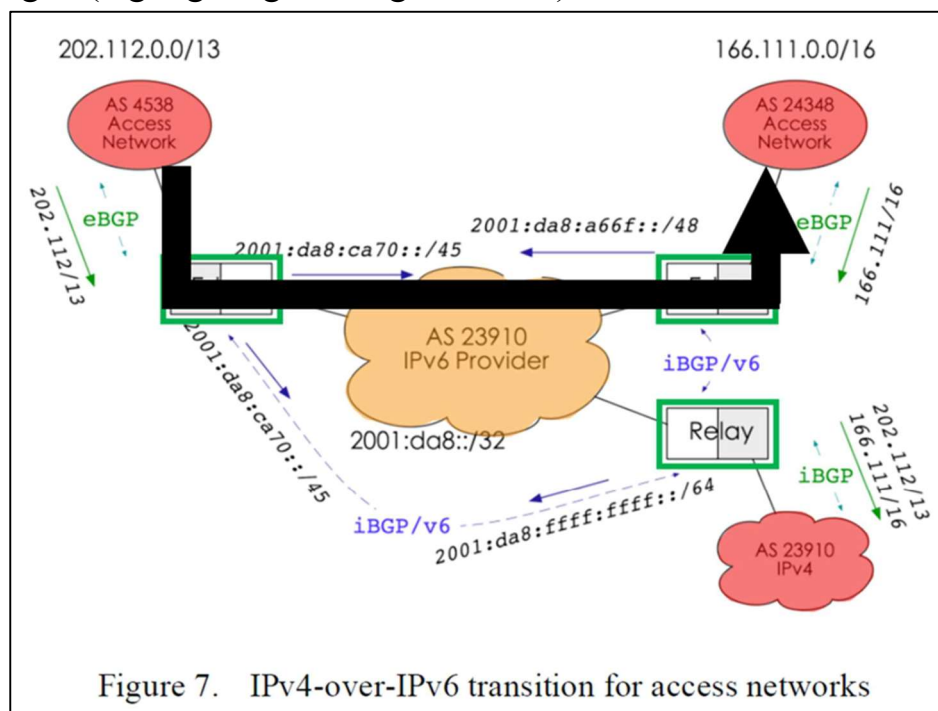
B. Li’s Figure 7 Is A Single Domain.

Petitioner next argues that Li’s Figure 7, under any definition, describes the claimed domains. In fact, in Figure 7, every item apart from the IPv4 AS 23910 falls within a single domain.

The single domain is illustrated in Figure 1 and repeated in Figure 7:



EX1037 Fig. 1 (highlighting the single domain)



Pet. at 17 (relying on the single domain illustrated in Figure 1).

The Reply only argues that the two access networks of Figure 7 (AS 4538 and AS 24348) are part of different domains from the IPv6 Provider (AS 23910). Reply 5-6. This argument relies entirely on Petitioner's belief that because AS 4538 and AS 24348 are autonomous systems, they must correspond to different domains. *Id.* However, Li explains that these systems are within one domain under common control.

AS 4538 and AS 24348 are not simply "autonomous systems," they are "stub autonomous systems." EX1037, 6. The Reply ignores this distinction. *See* Reply, 4-6. Though Dr. Bhattacharjee notes that these systems are stub autonomous systems, he also fails to explain what that means, and instead simply discusses them as if they were typical autonomous systems. EX1057 ¶¶8.

The remainder of Petitioner's argument is premised on the fact that Figure 7 is within Li's "Extensions to Inter-Domain Environment" section. Reply, 6. By relying on this summary heading, Petitioner ignores the teachings of Li. As explained in the POR, these stub autonomous networks "only have accesses to IPv4 hosts *within the scope controlled by the provider*," i.e. the IPv6 Provider of AS 23910. POR, 26-27 (emphasis added). Elsewhere, Li repeatedly explains that the stub autonomous systems of Figure 7 must be administered by a single operator, and these networks are treated differently than IPv4 networks outside the domain:

Meanwhile, the relay router advertises the special prefix with "0xFFFFFFFF" for all the IPv4 networks *outside the scope of the provider's administration*.

Indeed, the BGP RIB provides a way of automatically distributing the list. Actually, the scenario in Fig. 5 can be seen as an alternative for that in Fig. 1, as long as each IPv4 *subnet* are configured with BGP and assigned with a private AS number.

In the previous subsections, we employ a special prefix to avoid mapping the IPv4 route table explosion into IPv6. Only those IPv4 network identifiers that belong to the provider are mapped correspondingly while the others are merged into the special prefix.

Ex1037, 7. In other words, Li repeatedly recognizes that the stub autonomous systems and the IPv6 Provider are administered by a single operator. They are not independent domains. Petitioner's Reply completely ignores these disclosures despite later admitting that Li's "stub autonomous systems" are "stub IPv4 network[s]," just as in Figure 1. Reply, 11.

C. Petitioner Cannot Rely on the Embodiments of Figures 8, 10, and 11.

Petitioner raises a new argument that Figures 8, 10, and 11 disclose the claims of the '844 patent. Neither Petitioner nor Dr. Bhattacharjee argued in the Petition that these embodiments render any claims obvious. These new arguments here should not be considered.

"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." *In re Magnum Oil Tools*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The Board is not "free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner." *Id.* at 1380-81. This burden of persuasion

never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

As the Trial Practice Guide explains:

Generally, a reply or sur-reply may only respond to arguments raised in the preceding brief. 37 C.F.R. § 42.23, except as noted above. “Respond,” in the context of 37 C.F.R. § 42.23(b), does not mean proceed in a new direction with a new approach as compared to the positions taken in a prior filing. While replies and sur-replies can help crystalize issues for decision, a reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.

Patent Trial And Appeal Board Consolidated Trial Practice Guide (Nov. 2019), 74.

In *Ariosa Diagnostics v. Verinata Health, Inc.*, the Board declined to consider the petitioner’s reply argument relying on previously unidentified embodiments of a reference to establish obviousness. 805 F.3d 1359, 1367-68 (Fed. Cir. 2015). There, “[t]he Petitions and declarations...d[id] no more than point to a generic statement,” without discussing any of the specific embodiments that the petitioner relied on in its reply. *Id.* at 1367. The Federal Circuit affirmed the Board:

We see no error in the Board's rejection of [Petitioner’s] reliance, in its Reply submissions, on previously unidentified portions of a prior-art reference to make a meaningfully distinct contention.

Id. Similarly, in *MModal LLC v. Nuance Communications, Inc.*, the Federal Circuit noted that “judgments must be made in particular cases to distinguish an impermissible new argument not sufficiently made in the petition from a permissible explanation and defense... of a point already sufficiently made, in substance, in the petition.” 846 F. App’x 900, 906 (Fed. Cir. 2021). The Federal Circuit affirmed the

Board's rejection of Petitioner's reliance in reply on a different embodiment than the one used in the Petition for the same claim element. *Id.*

This applies here. The Petition relied *only* on Li's Figure 7 embodiment to show the elements of the claims. Petitioner never asserted that the embodiments of Figures 8, 10, and 11 taught or rendered obvious even a single element of any claim of the independent claims of the '844 Patent.

D. Petitioner Did Not Show that Figures 8, 10, and 11 Render the Claims Obvious.

Even now, Petitioner has not shown these new and different grounds render the claims obvious.

Petitioner first asserts that Patent Owner admitted that “the constructed IPv6 address in all figures contains (1) an IPv6 prefix, (2) the IPv4 destination address, and (3) zero padding.” Reply, 7 (citing POR 13-14). This is not true. As Patent Owner explained in the section cited by Petitioner, that address only related to “IPv4 communications traversing the IPv6 backbone that are directed to IPv4 addresses not held by the domain provider (e.g., addresses belonging to other domain providers).” POR, 13. Patent Owner explained “Petitioner's allegations only relate to the first mapping detailed above for intra-domain communications.” POR, 14.

Petitioner's new argument contends, without explanation, that Figures 8, 10, or 11 render the claims of the '844 patent obvious. Petitioner's only argument is they “operate in the same manner.” Reply, 7. But, Li treats each embodiment differently and explains the different challenges and implementations required for each. *See* EX1037 7-10.

Moreover, Figures 8, 10, and 11 themselves highlight Petitioner's failure. Though it is not in the Reply, Dr. Bhattacharjee contends that "Figure 8 also discloses a host in an IPv4 domain sending an IPv4 data packet through an IPv6 domain to a host in another IPv4 domain," and annotates Figure 8:

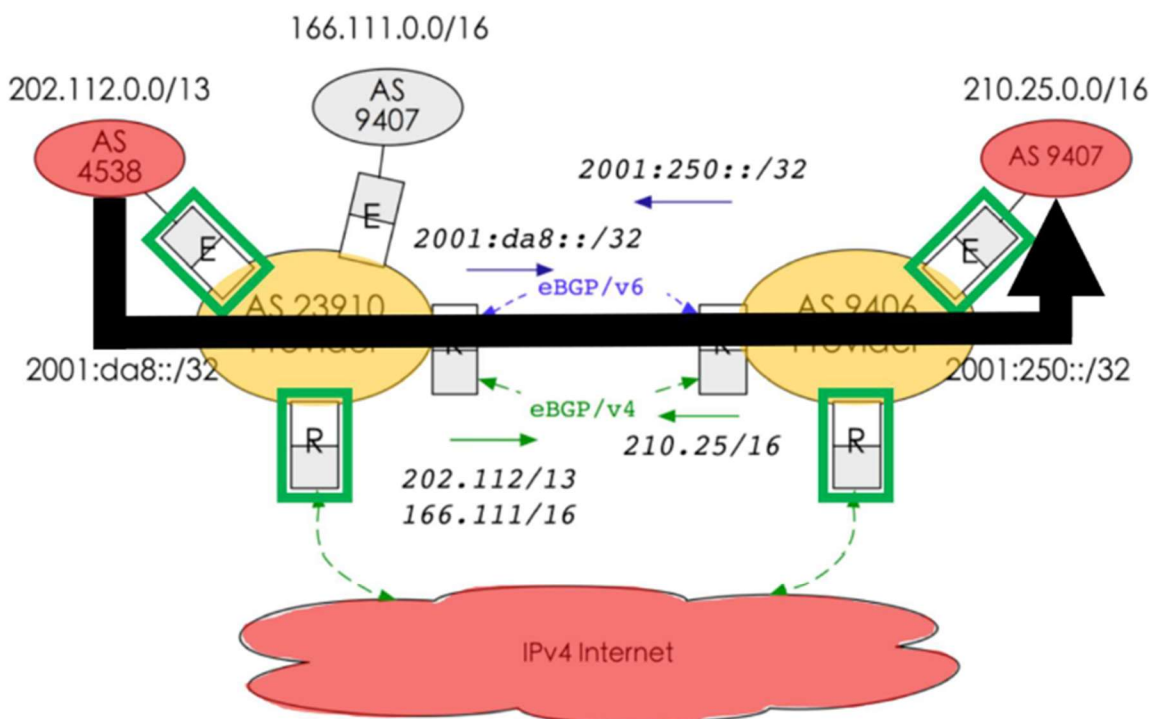
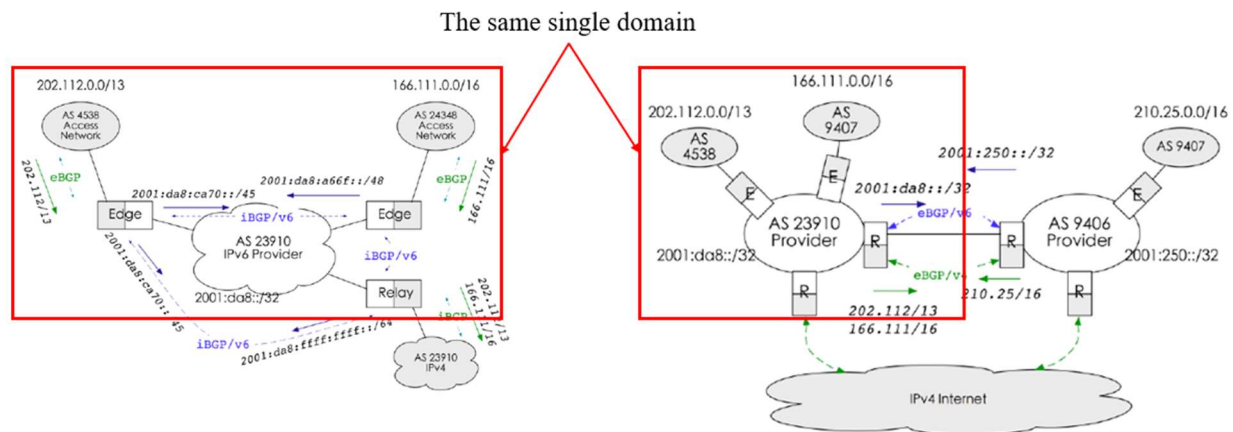


Figure 8. Transition in inter-domain environment

EX1057 ¶11 (quoting and annotating EX1037 Fig. 8).¹

But, Figure 8 includes the same single domain as Figure 7:

¹ Red indicates IPv4 networks and orange indicates IPv6 networks. EX1003 ¶61.



EX1037 Figs. 7, 8 (annotated). The only “inter-domain” connection in Figure 8 is between two IPv6 domains (AS 23910 and AS 9406), not an IPv4 domain and an IPv6 domain as claimed. *Id.*

Moreover, Petitioner has not provided an element by element analysis of Li’s Figure 8, 10, or 11 in view of the claims or explained how any other embodiment in Li renders the claims obvious. The failure to address the claim elements in light of the newly relied-on embodiments cannot meet Petitioner’s burden to establish invalidity. 35 U.S.C. § 312(a)(3); *Kerry Grp. Servs. Int’l Ltd. v. Fla. Food Prods., LLC*, No. 2023-2092, 2025 U.S. App. LEXIS 4139, at *10 (Fed. Cir. Feb. 24, 2025).

III. Ground 1: Li in View of Li-2 Does Not Render the Claims Obvious.

A. Petitioner Fails to Establish that Li-2 is Prior Art.

In its Reply, Petitioner relies on the wrong standard of “public availability,” arguing that Li-2 is prior art because it “was accessible to anyone in the world....” Reply, 11. No caselaw supports this position. In fact, the Federal Circuit has explained that “‘public accessibility’ requires more than technical accessibility.” *Acceleration Bay, LLC v. Activision Blizzard, Inc.*, 908 F.3d 765, 773 (Fed. Cir. 2018). Instead “[a] reference is considered publicly accessible if it was disseminated

or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *Id.* at 772 (quotation omitted).

In *Acceleration Bay*, the Federal Circuit affirmed the Board’s finding that a reference was not publicly available when “it was not meaningfully indexed such that an interested artisan exercising reasonable diligence would have found it....” *Id.* at 774. The reference at issue, “Lin,” had been uploaded to a website administered by UC San Diego’s Computer Science and Engineering Department (“CSE”) prior to the priority date. *Id.* at 773-774. But, like here, there was no evidence Lin was ever disseminated to the public. *Id.* So, the Board correctly focused on “whether an interested skilled artisan, using reasonable diligence, would have found Lin on the CSE [website].” *Id.*

The CSE website included some indexing and search functionality. But, it only “allowed a user to view a list of technical reports indexed only by author or year...” *Id.* The Board determined that, at best, “[Petitioner’s] evidence suggests that an artisan might have located Lin by skimming through potentially hundreds of titles in the same year, with most containing unrelated subject matter, or by viewing all titles in the database listed by author, when the authors were not particularly well known.” *Id.* Under these circumstances, the Board correctly determined the petitioner “[had] not shown sufficiently that the [website] was searchable or indexed in a meaningful way so that a person of ordinary skill in the art would have located Lin.” *Id.*

This case is analogous. Even if Li-2 was on the IETF's website in June 2008, it was never announced to the IETF community, and there is no evidence that anyone other than Li-2's authors knew of Li-2. EX2016, 18:22-24, EX2017, 39:19-21, 41:22-42:5, POR 37. The webpage included at least hundreds of documents, most containing unrelated subject matter. Reply, 8-9; EX1044, 1-14. And, the IETF staging folder was not meaningfully indexed or searchable, a fact the Petitioner does not dispute in reply. POR, 37-38. As in *Acceleration Bay*, these facts establish that Li-2 was not "publicly accessible."

B. A POSITA Would Not Have Been Motivated to Combine Li and Li-2.

Despite failing to establish Li-2 as prior art, Petitioner argues that a POSITA would combine Li with Li-2 to render the claims obvious. The Reply does not overcome the issues identified in the Response.

1. Li and Li-2 Address Different Communication Problems.

The Reply ignores the fact that Li and Li-2 address different problems. Instead, Petitioner quotes Li-2's statement that "[t]he IVI scheme" can support communication between (1) an IPv4 stub network, (2) an IPv6 network, and (3) the IPv4 internet. Reply, 11 (citing EX1038, 12). Petitioner then recognizes that Li's Figure 7 only connects (1) an IPv4 stub autonomous system, (2) an IPv6 Backbone, and (3) a second IPv4 stub autonomous system. *Id.* (citing EX1037, 6). In other words, the Reply recognizes that Li-2 connects a stub IPv4 Network to the *internet*, but Li connects two IPv4 stub networks. *See* Pet., 12. These are different problems, and the two solutions are not interchangeable. POR, 41-42 (citing EX2015 ¶¶81-82). The Reply ignores this difference.

2. Li-2 Is Not an Extension of Li.

Petitioner maintains that Li-2 is “an extension” of Li, without addressing the fact that the two never reference each other. Petitioner replies that Li and Li-2 “have the same author and disclose an addressing scheme comprising an IPv6 prefix, IPv4 address, and padding.” Reply, 12. But, even the images included in the Reply illustrate that the two documents use different addressing schemes. Reply, 12 (illustrating the IPv6 address schemes). The Reply glosses over this difference and does not address the distinctions noted in the Response. POR, 39-41.

3. Petitioner Relied on Non-Prior Art References.

The Petition relied on “express teachings” in documents that are not prior art² to argue that a POSITA would combine Li and Li-2. POR 42-44. Petitioner avoids this issue, instead pointing to other references that were not discussed in the POR. Reply 13. Whether other references were cited elsewhere, Petitioner made no attempt to show that the challenged references were prior art, and the arguments made in connection with those references cannot be considered.

IV. Ground 2: Petitioner Cannot Rely on Simultaneous Invention.

The Petition argued that “simultaneous invention further indicates that a POSITA would have been motivated to modify Li to form an IPv6 address that includes the destination port number.” Pet. 62. Patent Owner responded that Petitioner’s use of “simultaneous invention” is wrong. POR 46-51. Now, Petitioner

² Rooney (EX1020), EX1023, Li-2, and EX1026-EX1029.

mischaracterizes its problem as a failure to address every element of the claims in Ground 2. Reply, 15. This does not fix Petitioner's error. *See* POR, 46-49.

A. Petitioner Did Not Show its Exhibits are the Same Invention as the '844 Patent.

"[E]vidence of simultaneous invention cannot alone show obviousness." POR, 47 (quoting *Regents of the Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1295-96 (Fed. Cir. 2018)). Instead, "Simultaneous invention may serve as evidence of obviousness when considered in light of all of the circumstances." *Id.* (quoting same). In other words, simultaneous invention is only an additional "indicia of obviousness." *Geo M. Martin Co. v. All. Mach. Sys. Int'l LLC*, 618 F.3d 1294, 1304 (Fed. Cir. 2010).

The Petition did not explain how the other inventions were, in fact, "simultaneous inventions." POR, 49-51. As the Court in *Immunex Corp. v. Sandoz Inc.* recognized, there must be a nexus between the claims and simultaneous invention. 964 F.3d 1049, 1067 (Fed. Cir. 2020). But, when the instances of alleged simultaneous invention do not disclose the claimed invention, they are not evidence of simultaneous invention. *Id.* The same failure occurred here. The Petition does not explain how Li-2 disclosed several elements. POR, 49-51. Nor did Petitioner explain how the other four exhibits amounted to the same invention, *at all*. *Id.* Allowing Petitioner to cherry pick parts of these exhibits as evidence of "simultaneous invention" would be an end-run around the prior art requirements of obviousness, allowing Petitioner to rely on documents that post-date the priority date of the '844 patent.

B. The Board Should Not Consider Petitioner's New Arguments.

Petitioner newly presents evidence that these references are the same invention. As explained below, they are not. But Petitioner's arguments should be disregarded for two reasons. First, they should have been raised in the petition. *See Supra* II.C. Second, Petitioner improperly incorporates by reference large swaths of Dr. Bhattacharjee's new declaration to support conclusory statements, a violation of 37 C.F.R. § 42.6(a)(3). *Cisco Systems, Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 8-10 (PTAB Aug. 29, 2014) (informative).

In *Cisco*, Petitioner repeatedly "include[d] citations to the Declaration to support conclusory statements for which the Petition does not otherwise provide an argument or explanation." *Id.* at 9. In one example, Cisco (the petitioner) asserted that the art disclosed or rendered obvious a claim element in a conclusory paragraph and cited three paragraphs of the declaration, which included one and a half pages of analysis and reasoning that was entirely absent from the petition. *Id.* The Board concluded that "[t]his practice of citing the Declaration to support conclusory statements that are not otherwise supported in the Petition also amounts to incorporation by reference." *Id.* at 9.

The Reply is worse than *Cisco*. For elements 1[a] and 3[a], Petitioner simply asserts that the IVI References teach that element then cites to five paragraphs from the declaration covering more than four pages of analysis. Reply, 18 (citing EX1057 ¶¶22-26). Similar improper incorporations by reference are found throughout this section of the Reply, and these arguments should be struck.

C. The Reply Does Not Establish Simultaneous Invention.

Even now, the Reply does not address the entire invention in its discussion of the simultaneous invention exhibits (Li-2, the IVI Memo (EX1027), and the IVI Presentation (EX1028) (collectively, the “IVI References”), and the Bush Paper (EX1029) and the Bush Presentation (EX1041) (collectively, “Bush”).

For the IVI References, Petitioner only asserts they describe elements of claims 1 and 3, ignoring the remaining claims. Reply 17-20. Even so, Petitioner’s citations illustrate that the IVI References are *not* the same invention as the ’844 Patent. For example, Petitioner’s arguments regarding constructing an address and generating an IPv4 data packet only confirm that the purported constructed address in Li-2 is a source address, rather than a destination address. Reply, 18 (citing EX1038 10-11). For this same limitation, Petitioner does not cite any support from EX1028 (the IVI Presentation). And though EX1027 (the IVI Memo) discusses “port multiplexing,” it does not discuss generating an “IPv6 address by concatenating... a destination port number. *See* EX1027, 8 (not including a port number in the IVI Address Mapping of Figure 1), 18-19 (discussing port multiplexing in the context of port numbers assigned to IPv6 addresses). Moreover, if Li-2 was the same invention, Petitioner would have used it as a ground for anticipation. *See* Pet. Ground 1.

Petitioner’s Bush arguments are similarly deficient. For the Bush Paper (EX1029), Petitioner asserts pages 2 to 4 teach constructing and extracting IP addresses as claimed. But those three pages make up 75% of the body of the Bush Paper (excluding the appendix), and it is impossible to tell what Petitioner relies on. The Bush Presentation (EX1041) does not discuss constructing a destination for an

IPv6 packet using a port number or extracting that information. EX1041, 15-17, 19, 21. It only describes a destination addresses with a “WKP” portion and a “dest” portion. *Id.* at 19, 21. The “dest” portion in some instances is “A+P,” *id.* at 21, and the Bush Paper explains that A+P is an IPv4 address (not a port number) that is multiplexed with several port numbers, using “A+P NAT.” EX1029, 2-3. The Bush Paper does not teach that the port number would be included within any IP address, but instead that packets are forwarded “based on IPv4 address and port.” *Id.* at 3.

In short, Petitioner fails to meet its burden to show the five “simultaneous invention” exhibits are, in fact, the same invention claimed by the ’844 Patent. As such, they are not secondary indicia of obviousness and cannot show that a POSITA would modify Li to render the claims obvious.

V. Ground 3: Wu Does Not Teach a Destination Port Number, and a POSITA Would Not Combine Li and Wu.

The Response explained that a POSITA would not have been motivated to combine Li with Wu because they address completely different problems, and Wu would eliminate the benefits of Li. POR 51-56. The Response also explained that Wu does not teach the claimed destination port number. POR 56-59.

Petitioner attempts to avoid these failures by contending that Wu only needs to teach a port number in an address. Reply, 27. Despite noting, “[a] reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect,” Petitioner asks the Board to ignore the ’844 Patent’s claims and Wu’s teachings and instead focus on a narrow part of Wu, divorced from the surrounding text. Reply 24 (quoting

Belden Inc. v. Berk-Tek LLC, 805 F.3d 1064, 1076 (Fed. Cir. 2015) (emphasis original)), These arguments are not persuasive.³

A. Wu Does Not Describe The Claimed Port Number.

Petitioner argues that Wu discloses a destination port number in its “SilkRoad” address. Reply 28. Petitioner’s only citation for this proposal is the embodiment illustrated in Figure 11. *Id.* (citing and quoting EX1039, 15-16, Fig. 11). This embodiment does not help Petitioner, because this part of Wu does not describe the claimed destination port number.⁴ *Id.*

The Figure 11 embodiment addresses a packet sent from an “ordinary IPv6 node to the client end,” i.e., the packet is sent from an IPv6 network to an IPv4 network. EX1039, 15. In this embodiment, the SilkRoad address does not include a destination port number. Instead, in the packet sent from the IPv6 node to the IPv4 client end, “the destination port is the extracted external address.” *Id.* at 16; *see also* POR 57-58. In fact, in every instance of transmitting a packet from an IPv6 node to an IPv4 end client, “the destination port is the extracted external address.” EX1039, 7, 16. In the return packet of Figure 11, sent from the client end to the IPv6 node, “both the destination port and the source port are 5188” rather than the external

³ References to the ’845 Patent have no bearing here. Petitioner has not shown that the ’845 is patentably identical to the ’844. *See Google LLC v. Hammond Dev. Int’l, Inc.*, 54 F.4th 1377, 1381 (Fed. Cir. 2022).

⁴ Petitioner did not rely on this embodiment in the Petition, and this argument should be rejected. *Supra* II.C.

pseudo port number of the destination device. *Id.* 16. No relevant embodiment of Wu uses that external pseudo port number as destination information. POR, 58. It only represents source information. *Id.*

Turning to Wu’s “pseudo external port,” Petitioner does not appear to dispute that Wu does not describe a “port number” but a “pseudo external port number.” POR, 56-58. Instead, Petitioner argues that a POSITA would further modify Wu to use “the original port number when implementing Wu’s teachings into Li...,” Reply, 30, because “a POSITA would have recognized there is no need to perform the additional operations on the original port number described in Wu....” Reply, 29. But, this argument relies on the mistaken position that Wu is stateless. As explained below, Wu’s stateful system maintains NAT state tables between the internal and external packet information, including the port number, and modified that external NAT-mapped port. POR, 56-58. Petitioner would have the Board ignore these teachings.

B. Petitioner’s Arguments Misrepresent the Teachings of Wu.

Petitioner also Wu is stateless to challenge Patent Owner’s arguments that Li and Wu would not be combined. Petitioner’s arguments are based on misrepresentations of Wu’s disclosure.

The Reply quotes Wu’s discussion of “constructing the SilkRoad address.” Reply, 26, 28-29 (citing EX1039, 13, 15-16). When constructing the address, Wu describes “[t]he process of initialized configuration of client end.” EX1039, 13. Here, the SilkRoad address is constructed not from a received packet but from “the

received router advertisement message....” *Id.* This is the initial setup, not packet routing:

The client end firstly registers with the server to obtain a SilkRoad address after it is started every time, so as to establish the communication with other IPv6 nodes, this process is called as the initialized configuration of client end, as shown in Attached Fig. 5.

The initialized configuration of client end is completed by sending a series of route request messages to the server, the server responds with router advertisement message, the router advertisement message contains the external address and external port information mapped by NAT.

Through this process, the client end obtains a SilkRoad address and judges which type of NAT field it is located.

EX1039, 12. As for routing packets, Wu explains it relies on stateful techniques:

The external port (NAT-mapped port) and 0xFFFF and/or the subsequent 16-bit numerical value. The SilkRoad client end send an initialized data packet to the server after it is started, the UDP port of this packet is mapped to a different port when it passes NAT, we call it as the external port.

The server obtains this port from the received initialized data packet. Considering that NAT will delete the expired mapping relation, the client end (or server) will periodically send data packets to NAT to maintain such mapping relation, thus, *the NAT translation table always keeps this mapping relation.*

EX1039, 11 (emphasis added). In other words, the NAT mapping must be maintained.

Petitioner's assertions to the contrary distort the language of Wu and should be disregarded. For example, Petitioner states, "[a]fter receiving [data] packet[s]," the external servers "extract[s] the external address and external port from the destination IPv6 address." Reply, 26 (modification original) (quoting EX1039, 6). This is incorrect. Wu is referring a specific packet in a discovery process; "a maintaining packet" first sent from Client end 1 to Server 1, modified and sent to Server 2, and then to Client end 2. EX1039, 6. This process ends with another "maintain packet" sent back to Client end 1, establishing the stateful system. *Id.* These selective quotes do not show that Wu is stateless.

C. A POSITA Would Not Have Been Motivated to Combine Wu's Stateful System With Li's Stateless System.

Combining Wu's stateful system with Li's stateless system would have eliminated the benefits of Li, POR, 53-55, and, a POSITA would not have been motivated combine the two. MPEP 2143.01(VI) (The references cannot render the claims obvious "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified....").

Nonetheless, Petitioner argues that Li and Wu would have been combined and cites several cases in support of that proposition. Reply 27, 29. Petitioner's cases are not applicable here. In *In re Mouttet*, the Federal Circuit considered whether replacing optical crossbar circuitry with electrical crossbar circuitry rendered a claim obvious. 686 F.3d 1322, 1332 (Fed. Cir. 2012). The Federal Circuit found that the secondary reference "clearly teaches what is at the core of [the] invention: a crossbar of parallel conductive wires with programmable molecular-scale switches at the

junctions,” *id.* at 1333, and did not teach away from the proposed combination, *id.* at 1333-34. On the other hand, the Federal Circuit recognized that “if the combination of references would change the principle of operation of the prior art, then the teachings cannot suffice to render claims obvious.” *Id.* at 1332.

Here, Wu’s teachings plainly change the principle of operation of Li. Li repeated explains that stateless operation is a key property. *E.g.*, EX1037, 1 (“the proposed one is automatic and stateless for end nodes, without explicit tunneling.”). Yet, Wu requires maintaining NAT tables. EX1039, 3 (“External port is the port mapped by NAT and 0xFFFF and/or the subsequent 16-bit numerical value.... the client end or the server will periodically send data packets to NAT to maintain such mapping relation, thus, the NAT translation table always keeps this mapping relation....”). Unlike replacing optical circuitry with electrical circuitry, Wu completely removes a key aspect of Li.

Similarly, in *In re Kubin*, the Federal Circuit reviewed “the Board’s decision that the claimed [gene] sequence, not appellants’ unclaimed cloning technique, is obvious in light of the abundant prior art.” *In re Kubin*, 561 F.3d 1351, 1356 (Fed. Cir. 2009). The case turned on “obvious to try” arguments related to the expected success of various unclaimed techniques that lead to the claimed gene sequence. *See id.* at 1358-59. The Federal Circuit recognized “[t]he difference between [the prior art] and the application’s techniques might be directly relevant to obviousness in this case if [the applicant] had claimed a method of DNA cloning or isolation.” *Id.* at 1356.

Here, the question is not whether the combination would lead to some claimed expected outcome. It is whether Li and Wu can be combined *at all* (assuming Wu even discloses the claimed destination port number). The differences between Wu and Li cannot be ignored. As explained above, Wu does not disclose the claimed destination port number. Petitioner's new arguments that Wu's teachings should be further modified only highlight the failure of the prior art.

VI. Conclusion

None of Petitioner's Grounds establish that the challenged claims are obvious in view of the prior art.

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Dated: March 5, 2024

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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing PATENT OWNER'S SUR-REPLY TO PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 8,451,844 was served via email to lead and backup counsel of record for Petitioners as follows:

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that this brief complies with the type-volume limitation of 37 C.F.R. § 42.24 because this brief contains 5,560 words.

Dated: March 5, 2024

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