

UNITED STATES PATENT AND TRADEMARK OFFICE

JIANGSU FAVORED NANOTECHNOLOGY CO., LTD.,

Petitioner,

v.

P2I LTD.,

Patent Owner.

CASE: IPR2024-00380

Patent No. 11,041,087

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

Updated Exhibit List	ii
I. Introduction.....	1
II. Cohen and Francesch are Analogous Art	1
A. P2i mistakes the applicable field of endeavor.....	2
1. P2i imposes unfounded restrictions on the field of endeavor	2
2. Cohen and Francesch fall within the same field of endeavor as the '087 patent.....	5
B. Cohen and Francesch are reasonably pertinent.....	6
C. The petition was not required to raise analogous art arguments.....	10
III. Ground I – Cohen and Legein Rendered the Claims Obvious	11
A. A POSA Would Have Been Motivated to Combine Cohen and Legein	11
1. P2i reads limitations into the claims and mischaracterizes the knowledge of a POSA.....	11
2. P2i mischaracterizes the Petition and attacks a strawman.....	14
3. P2i distorts the capabilities of a POSA.....	16
B. Limitation 1[a] is Obvious	18
C. The challenged dependent claims are obvious.....	18
IV. Ground 2 – Francesch and Legein Rendered the Claims obvious	19
A. A POSA Would Have Been Motivated to Combine Francesch and Legein	19
B. Limitation 1[a] is Obvious	22
C. The challenged dependent claims are obvious.....	22
V. Claim Construction.....	23
A. “Aryl”	23
B. Claim 1 Preamble	23
VI. Conclusion	25

UPDATED EXHIBIT LIST

Petitioner's Exhibits

Exhibit	Description
Ex. 1001	U.S. Patent 11,041,087, “Coatings,” to S.R. Coulson, et al. (“the ’087 patent”) ¹
Ex. 1002	Declaration of Dr. Karen Gleason
Ex. 1003	Curriculum vitae for Dr. Karen Gleason
Ex. 1004	U.S. Patent 2,716,638, “Divinyltetramethyldisiloxane and Polymers Therefrom,” to M. Cohen and J.R. Ladd (“Cohen”)
Ex. 1005	International Publication WO 2014/026967, “Surface Coatings,” to F. Legein, et al. (“Legein”)
Ex. 1006	Francesch, L. et al, “Fabrication of Bioactive Surfaces by Plasma Polymerization Techniques Using a Novel Acrylate-Derived Monomer,” <i>Plasma Processes and Polymers</i> , 2:605–11 (2005) (“Francesch”)
Ex. 1007	Declaration of Dr. Salvador Borrós Gómez
Ex. 1008	U.S. Patent Application Publication No. 2012/0037400, “Electrically Isolating Polymer Composition,” to L.L. Fields, et al.

¹ Citation convention: Where an exhibit contains original page numbering that uniquely identifies each page in the exhibit, this petition uses those page numbers to refer to the pages in the exhibit. Where an exhibit contains original page numbering that does not clearly and uniquely identify each page in the exhibit (such as in the ’087 patent’s file history, Ex. 1028), or does not contain page numbering at all, unique page numbering added in the lower right corner of the exhibit will be used.

Ex. 1009	Makino, K., et al., “Low loss graded index polymer optical fiber with high stability under damp heat conditions,” <i>Optics Express</i> 20(12):12893-98 (2012)
Ex. 1010	International Publication WO 99/64662, “Surface Coatings” to J.P.S. Badyal, et al.
Ex. 1011	International Publication No. WO 2007/083122, “Novel Products,” to Stephen Coulson ²
Ex. 1012	International Publication WO 2012/158953, “Coated Electronic Devices and Associated Methods,” to Filip Legein, et al.
Ex. 1013	U.S. Patent Application Publication US 2013/0176700, “Electronic Devices with Internal Moisture Resistant Coatings,” to B. Stevens, et al.
Ex. 1014	U.S. Patent Application Publication US 2007/0020451, “Moisture Barrier Coatings,” to R. Padiyath and M.M. David
Ex. 1015	U.S. Patent Application Publication US 2005/0141738, “Hydrophobic Coating of Individual Components of Hearing Aid Devices,” to E. Karamuk
Ex. 1016	U.S. Patent 6,551,950, “Surface Coatings,” to J.P.S. Badyal, et al.
Ex. 1017	U.S. Patent 4,562,091, “Use of Plasma Polymerized Organosilicon Films in Fabrication of Lift-Off Masks,” to H.S. Sachdev and K.G. Sachdev
Ex. 1018	U.S. Patent 7,439,315, “Polymer Film and Method for Producing the Same,” to N. Kunimi, et al.
Ex. 1019	Coulson, S.R., et al., “Ultralow Surface Energy Plasma Polymer Films,” <i>Chemistry of Materials</i> 12(7):2031–2038 (2000)

² Exhibit 1011 was misidentified in the exhibit list included in the petition. Compare Paper No. 1 (Petition) at ix, *with* Ex. 1011. That error has been corrected here to correctly identify the document filed as Exhibit 1011 in this proceeding.

Ex. 1020	U.S. Patent Application Publication US 2005/0034667, “Method and apparatus for forming silicon-containing insulation film having low dielectric constant,” to N. Tsuji, et al.
Ex. 1021	U.S. Patent Application Publication US 2010/0203347, “Method for Liquid Proofing an Item by Plasma Graft Polymerisation,” to S. Coulson
Ex. 1022	International Publication WO 98/58117, “Surface Coatings,” to J.P.S. Badyal, et al.
Ex. 1023	Tarducci, C., et al., “Synthesis of Cross-Linked Ethylene Glycol Dimethacrylate and Cyclic Methacrylic Anhydride Polymer Structures by Pulsed Plasma Deposition,” <i>Macromolecules</i> 35(23):8724–8727 (2002)
Ex. 1024	U.S. Patent 6,214,423, “Method of Forming a Polymer on a Surface,” to W.W. Lee, et al.
Ex. 1025	International Publication WO 2012/168440, “A Coated Substrate Having Hydrophobic Moiety-Repelling Surface Characteristics and Process for Preparing the Same,” to C. Taesler
Ex. 1026	Yagüe, J.L. and Gleason, K.K., “Enhanced Cross-Linked Density by Annealing on Fluorinated Polymers Synthesized via Initiated Chemical Vapor Deposition to Prevent Surface Reconstruction,” <i>Macromolecules</i> 46(16):6548-6554 (2013)
Ex. 1027	U.S. Patent 6,207,238, “Plasma Enhanced Chemical Deposition for High and/or Low Index of Refraction Polymers,” to J.D. Affinito
Ex. 1028	Prosecution history of the '087 patent (excerpted)
Ex. 1029	Yao, W., et al., “Fluorinated poly(meth)acrylate: Synthesis and properties,” <i>Polymer</i> 55(24):6197-6211 (2014)
Ex. 1030	Toyama, M., et al., “Surface Wettability of Alkyl Methacrylate Polymers and Copolymers,” <i>Journal of Colloid and Interface Science</i> 47(3) 802-803 (1974)
Ex. 1031	Syromyatnikov, L., et al., “Aryl (meth)acrylates and polymers based on them,” <i>Russian Chemical Reviews</i> 68(9) 781-99 (1999)

Ex. 1032	Gargallo, L. et al., "Polymer conformation and viscometric behavior," <i>Polymer Bulletin</i> 10, 264-70 (1983)
Ex. 1033	Ham, G. et al., "Cross-linking in the polymerization of vinyl benzoate and related compounds," <i>Journal of Polymer Science</i> 8(1):91-99 (1952)
Ex. 1034	Asandulesa, M., et al., "Chemically polymerization mechanism of aromatic compounds under atmospheric pressure plasma conditions," <i>Plasma Processes and Polymers</i> 10, 469-80 (2013)
Ex. 1035	Chen, Y-J., et al., "The influence of alkylene spacers on conformational and thermal properties of poly(aryl methacrylates)," <i>Journal of Polymer Science: Part B Polymer Physics</i> 32,715-19 (1994)
Ex. 1036	Odian, G., <i>Principles of Polymerization</i> , John Wiley & Sons, 4th ed. (2004) (excerpted)
Ex. 1037	Kurosawa, S., et al., "Detection of deposition rate of plasma polymerized acrylate and methacrylate derivatives using quartz crystal microbalance," <i>Thin Solid Films</i> 457:26-33 (2004)
Ex. 1038	Teng, H. et al., "Property modification of poly(methyl methacrylate) through copolymerization with fluorinated aryl methacrylate monomers," <i>Polym. Adv. Techno.</i> 18:453-457 (2007)
Ex. 1039	Rau, C., and Kulisch, W., "Mechanisms of Plasma Polymerization of Various Silico-organic Monomers," <i>Thin Solid Films</i> 249: 28-37 (1994) ("Rau")
Ex. 1040	Yasuda, H., <i>Plasma Polymerization</i> , Academic Press, London (1985) (excerpted)
Ex. 1041	Kurosawa S. et al., "Detection of the Deposition Rate of Plasma-Polymerized Films with a Quartz Crystal Microbalance," <i>Journal of Photopolymer Science and Technology</i> , 13:33-38 (2000)
Ex. 1042	Clayden, J., et al., <i>Organic Chemistry</i> , Oxford University Press, New York (2012) (excerpted)

Ex. 1043	Kabza, K., et al., “Contact angle goniometry as a tool for surface tension measurements of solids, using Zisman plot method,” <i>Journal of Chemical Education</i> 77(1):63-65 (2000)
Ex. 1044	U.S. Patent 7,097,705, “Cationic-anionic blends for dynamic surface tension reduction,” to C.D. Smith, et al.
Ex. 1045	Talib et al., “Plasma Polymerization of Silicon-Containing Monomers,” <i>Journal of Photopolymer Science and Technology</i> , 14(1):129-138 (2001)
Ex. 1046	Kurosawa, S., et al., “Detection of deposition rate of plasma-polymerized silicon-containing films by quartz crystal microbalance,” <i>Thin Solid Films</i> 407:1-6 (2002)
Ex. 1047	Liu, J. and Avendaño, S.M., “Microbial degradation of polyfluoroalkyl chemicals in the environment: A review,” <i>Environment International</i> 61:98-114 (2013)
Ex. 1048	U.S. Patent 3,816,564, “Insulation Coating Compositions,” to H.R. Holliday and G.L. Schurter
Ex. 1049	U.S. Patent 8,389,070, “Coating of a polymer layer using low power pulsed plasma in a plasma chamber of large volume,” to S.R. Coulson et al.
Ex. 1050	1,4-butanediol divinyl ether (BDVE) (CAS No. 3891-33-6) from chemspider.com
Ex. 1051	pentafluorophenyl methacrylate (PFM) (CAS No. 13642-97-2) from chemspider.com
Ex. 1052	Joback, K.G. and Reid, R.C., “Estimation of pure-component properties from group-contributions,” <i>Chemical Engineering Communications</i> 57:233-243 (1987)
Ex. 1053	International Publication WO 2013/019492, “Self-stick foam adhesive,” to S. Traser and J.D. Forster
Ex. 1054	U.S. Patent Application Publication No. 2010/0224568, “Use of silica for the removal of organosilanes,” to S. Selcuk
Ex. 1055	U.S. Patent Application Publication No. 2010/0152377, “Process for preparing polyester composite materials,” to J. Chen et al.

Ex. 1056	International Publication WO 2012/109228, “Low-tack, hydrophobic ophthalmic device materials,” to W. Laredo and X. Jiang
Ex. 1057	Muir, D.C.G. and Howard, P.H., “Are there other persistent organic pollutants? A challenge for environmental chemists,” <i>Environmental Science & Technology</i> 40(23):7157-66 (2006)
Ex. 1058	U.S. Patent 8,222,348, “Epoxy silicone and process for producing same, and curable mix composition using same and use thereof,” to Y. Kuroda, et al.
Ex. 1059	Supplemental Declaration of Dr. Karen Gleason
Ex. 1060	Transcript of Nov. 21, 2024, Deposition of Jay J. Senkevich, Ph.D.
Ex. 1061	H. Yasuda and T. Hsu, “Some Aspects of Plasma Polymerization Investigated by Pulsed R.F. Discharge,” <i>Journal of Polymer Science</i> , Vol. 15, 81-97 (1977).
Ex. 1062	Yasuda, H., Plasma Polymerization, 1985 Academic Press, London (Excerpt)
Ex. 1063	International Publication WO 03/101621, “Application of a Coating Forming Material Onto at Least One Substrate,” to Luke Ward
Ex. 1064	International Publication WO 03/097245, “Atomisation of a Precursor Into an Excitation Medium for Coating a Remote Substrate,” to Luke Ward
Ex. 1065	Limb SJ, Edell DJ, Gleason EF, Gleason KK, “Pulsed plasma-enhanced chemical vapor deposition from hexafluoropropylene oxide: Film composition study,” <i>Journal of Applied Polymer Science</i> 67(8), 1489–1502 (1998)
Ex. 1066	Preliminary Amendment dated June 15, 2018, in U.S. Patent Appl. No. 15/735,130
Ex. 1067	Honda K, Morita M, Otsuka H, Takahara A, “Molecular Aggregation Structure and Surface Properties of Poly(fluoroalkyl acrylate) Thin Films,” <i>Macromolecules</i> 38, 5699-5705 (2005)

Patent Owner's Exhibits

Exhibit	Description
Ex. 2001	October 8, 2020, IDS and references, as submitted in the '087 patent (Part 1 of 2)
Ex. 2002	October 8, 2020, IDS and references, as submitted in the '087 patent (Part 2 of 2)
Ex. 2003	December 20, 2020, IDS and references, as submitted in the '087 patent
Ex. 2004	IPR Petition IPR2020-01198 (“–01198 Petition”)
Ex. 2005	Patent Owner's Preliminary Response in IPR2020-01198
Ex. 2006	Decision of institution in IPR2020-01198
Ex. 2007	Declaration of Jay J. Senkevich, Ph.D.
Ex. 2008	<i>Curriculum vitae</i> of Jay J. Senkevich, Ph.D.
Ex. 2009	Mozetic, A. Vesel, G. Prime and R. Zaplotnik, “Chapter 2 - Introduction to Plasma and Plasma Diagnostics” <i>Non-Thermal Plasma Technology for Polymeric Materials</i> (2019)
Ex. 2010	Y. Yin, M.M.M. Bilek and D.R. McKenzie, "The Origins of self-bias on dielectric substrates in RF plasma processing" <i>Surface and Coatings Technology</i> (2006)
Ex. 2011	J. Kadir Khanov, C.-L. Yang, Z.-X. Chang, R.-M. Zhu, C.-Y. Pan, Y.-Z. You, W.-J. Zhang and C.-Y. Hong, “In situ cross-linking polymerization-induced self-assembly not only generates cross-linked structures but also promotes morphology transition by the cross-linker” <i>Polymer Chemistry</i> (2021)
Ex. 2012	F. Loyer, S. Bulou, P. Choquet and N.D. Boscher, “Pulsed plasma initiated chemical vapor deposition (PiCVD) of polymer layers – A kinetic model for the description of gas phase to surface interactions in pulsed plasma discharges” <i>Plasma Processes and Polymers</i> (2018)

Ex. 2013	B. Tonpheng, J. Yua and O. Andersson, “Effects of cross-links, pressure and temperature on the thermal properties and glass transition behaviour of polybutadiene” <i>Physical Chemistry Chemical Physics</i> (2011)
Ex. 2014	T. Takeichi, N. Furukawa, “5.25 - Epoxy Resins and Phenol-Formaldehyde Resins” <i>Polymer Science: A Comprehensive Reference</i> , Volume 5 (2012)

I. INTRODUCTION

In its Institution Decision, the Board noted that it perceived the merits of the petition to be strong. Nothing in P2i's Patent Owner Response should cause the Board to second-guess that initial impression. P2i does not dispute that the cited prior art disclosed both the claimed monomer and crosslinking reagent. Instead, P2i tries to exclude it as non-analogous by framing the field of endeavor and problems addressed by the '087 patent in overly narrow terms. P2i's only other arguments purport to challenge the motivation to combine. Tellingly, however, P2i ignores most of the evidence the petition presented on that issue. Rather than dispute Petitioner's evidence, P2i resorts to conclusory arguments based on conclusory expert testimony. Worse still, most of P2i's arguments cannot be squared with the '087 patent itself or the agreed-upon level of ordinary skill in the art. P2i's conclusory arguments should be rejected, and the Board should cancel the challenged claims.

II. COHEN AND FRANCESCH ARE ANALOGOUS ART

A reference is analogous art if it is (1) within the same field of endeavor as the challenged patent, regardless of the problem addressed; or (2) reasonably pertinent to the problem with which the inventor is involved. *Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020). A reference that satisfies either test qualifies as analogous art. *Wyers v. Master Lock Co.*, 616 F.3d

1231, 1237-38 (Fed. Cir. 2010). P2i attempts to circumvent the teachings of Cohen and Francesch by misapplying those tests and misreading the '087 patent.

A. The cited references fit the relevant field of endeavor

1. P2i imposes unfounded restrictions on the field of endeavor

To engineer an analogous-art argument, P2i attempts to restrict the '087 patent's field of endeavor to "*plasma* polymerized coatings *for electronic devices*." POR at 18, 28 (emphases added). P2i first relies on claim 1 to justify imposing those restrictions. POR at 19. But "[t]he field of endeavor of a patent is not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field." *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1001 (Fed. Cir. 2016). Nor is there any requirement limiting the field of endeavor to what is recited in the claims. *See, e.g., In re Bigio*, 381 F.3d 1320, 1323, 1326 (Fed. Cir. 2004) (finding toothbrush prior art to be within same field of endeavor as patent with claims limited to a "hair brush"); *see also In re Chaganti*, 554 F. App'x 917, 921 (Fed. Cir. 2014) (references "need not disclose every limitation of the claimed invention to fall within the same field of endeavor as the claimed invention"); *NXP Semiconductors USA, Inc. v. Inside Secure*, No. IPR2016-00681, Paper 29 at 46 (PTAB Aug. 30, 2017) (discussing *Bigio*, 381 F.3d at 1323, 1326). It is the patent's "full disclosure," not the claims alone, that inform the field of endeavor. *Bigio*, 381 F.3d at 1326.

The specification contradicts P2i's categorical restrictions on the field of endeavor. As to "electronic devices," the Board already rejected the same argument when P2i tried it in the IPR proceeding on the '087 patent's parent that shares the same specification. IPR2020-01198, Paper 9 at 19 (Jan. 27, 2021) (explaining the Board was "not persuaded" that the field of endeavor "can be limited to solely 'electronic devices'"). There, the Board reasoned that the specification "expressly refuses to limit the substrates that may be coated to 'electronic substrate[s],' stating instead that 'the invention is of benefit in the context of a wide variety of substrates.'" *Id.* (citing parent U.S. Patent 10,421,876 at 18:26-29). The '087 patent uses the same expansive language when discussing potential substrates. Ex. 1001 at 14:38-40.

P2i nonetheless contends that "each example" in the '087 patent involves "coatings for electronic devices." POR at 19. But Examples 1 and 3 describe coatings applied to silicon wafers—the *same* substrate used in Francesch—and Examples 4 and 5 do not specify the substrate used at all. Ex. 1001 at 15:53-54, 16:66-67, 17:23-18:22; Ex. 1006 at 607. In addition, the '087 patent's background section cites two prior art references that were *not* directed to coating electronic devices, but instead described coatings applied to fabrics (Ex. 1022) or to silicon wafers (Ex. 1067 at 5699). Ex. 1001 at 1:24-50 (citing Ex. 1022, Ex. 1067). And while '087 claim 1 references an "*electronic or electrical* component," the

“electronic or electrical” qualifier was added during prosecution of the parent patent. Ex. 1066. Neither the “Field of the Invention” in the ’087 patent nor the original claims of the priority application (which the ’087 patent incorporates by reference, Ex. 1001 at 1:3-10) specified that the “components” being coated must be “electronic or electrical.” *Id.* at 1:12-22; Ex. 1028 at 119 (claim 1 of EP 15386017.6).

Nor does the specification support restricting the field of endeavor exclusively to plasma polymerized coatings. The “Field of the Invention” begins with the broad statement that “This invention relates to *protective coatings*.” Ex. 1001 at 1:14 (emphasis added). That section goes on to discuss types of protective coatings with no mention of plasma polymerization. *Id.* at 1:14-22. *See, e.g., Cisco Sys., Inc. v. Egenera, Inc.*, No. IPR2017-01340, Paper 33 at 40 (Oct. 29, 2018) (relying on broad “Field of the Invention” in rejecting overly narrow field of endeavor). To be sure, plasma polymerization is mentioned at several points elsewhere in the specification, but it is presented as a non-exclusive option for generating the described protective coatings. *See* Ex. 1001 at 2:23-25 (protective coatings “obtainable” through plasma polymerization), Abstract (same), 13:18-21 (coatings “[t]ypically” applied using a plasma chamber), 14:66-15:7 (coatings may be applied with various conditions determined “using routine methods” or “preferably” using techniques described in the specification).

2. Cohen and Francesch fall within the same field of endeavor as the '087 patent

Properly understood, the '087 patent's field of endeavor is protective coatings or polymer coatings. Ex. 1059 ¶9. As noted, the '087 patent is simply and broadly entitled "Coatings," and the "Field of the Invention" proclaims that the "invention relates to *protective coatings*." Ex. 1001 at 1:14 (emphasis added). While the '087 patent identifies electronics as one type of substrate that "may" be used "advantageously" with the disclosed coatings, the specification is clear that "the invention is of benefit in the context of a wide variety of substrates." Ex. 1001 at 14:38-40. The specification similarly declines to limit polymerization exclusively to the disclosed plasma deposition techniques. *E.g.*, Ex. 1001 at 14:66-15:7.

Cohen fits within the field of endeavor of protective polymer coatings. Cohen described insulating polymers that could be applied as films and be used to protect substrates including cables and electrical coils. Ex. 1004 at 2:60-63, 5:13-25; Ex. 1059 ¶10. Like Cohen, Francesch qualifies as analogous art within the field of protective polymer coatings. Francesch described plasma polymerized coatings prepared using a crosslinker to "improve ... solvent resistance," Ex. 1006 at 610, *i.e.*, to protect against chemical interactions with solvents, Pet. at 12-13; Ex. 1002, ¶¶83-85.

In addition, Francesch would satisfy the field-of-end endeavor test even under P2i's unduly restrictive view. It is beyond dispute that Francesch taught polymer coatings applied through plasma polymerization, Ex. 1006 at 607, and P2i does not dispute that Francesch was published in *Plasma Processes and Polymers*, *id.* at 605. In addition, P2i argues that "[e]ach example" in the '087 patent "involves plasma polymerized protective coatings for electronic devices." POR at 19. At least two of those examples describe coatings applied to a "silicon wafer," which is the *same* substrate used for Francesch's plasma coating reactions. Ex. 1001 at 15:54-55, 16:66-67; Ex. 1006 at 605, 607. If coating a silicon wafer in Examples 1 and 3 of the '087 patent involved "coatings for electronic devices" as P2i asserts, the same umbrella must extend to include Francesch's disclosure of coatings for the same substrates.

B. Cohen and Francesch are reasonably pertinent

Even if Cohen or Francesch were not within the '087 patent's field of endeavor, they would have been reasonably pertinent to the problem confronting the inventors of the '087 patent.

The '087 patent focuses on providing polymer coatings that would provide protection and have adequate crosslinking to achieve lasting stability over time. Specifically, the '087 patent explains that the inventors sought polymers that could protect electronic devices and would also remain stable and in place once applied—

for example, without smearing—due to sufficient crosslinking. Ex. 1001 at 1:66-2:4; *see also id.* at Ex. 1001 at 1:17-22, 1:29-42, 2:64-3:3, 14:34-36; Ex. 1002 ¶¶50-54. Cohen and Francesch were reasonably pertinent to that problem, as both described known materials that could be used effectively to create protective, *crosslinked* polymer coatings.

Cohen described an organosilane crosslinker known as divinyl tetramethyldisiloxane (DVTMDS). Ex. 1004, 5:1-25. Cohen further described copolymerizing DVTMDS with a variety of monomers. *Id.*, 2:14-30; 4:38-57. Cohen taught that the resulting copolymers “have a wide variety of applications” including in “dielectric materials in electrical apparatus” and “numerous other electrical applications.” *Id.* at 5:1-2; 5:17-21. Because Cohen disclosed useful crosslinkers and monomers for creating polymers for electrical applications, a POSA would reasonably have consulted Cohen in trying to develop crosslinked protective polymer coatings. Ex. 1059 ¶10.

A POSA likewise would have reasonably consulted Francesch because it described using plasma polymerization with a monomer (PFM) and crosslinking reagent (BDVE) to deposit a polymer coating. Ex. 1059 ¶11; *see also* Pet at 12-13; Ex. 1002 ¶¶83-85. Furthermore, a POSA would have expected Francesch’s polymer coatings to be useful with electronic devices because the coatings were crosslinked, had hydrophobic properties, had been demonstrated to be suitable for plasma-

mediated deposition, and had been successfully applied to silicon wafer material like those commonly used in electronics. Ex. 1059 ¶11; *see also* Pet. at 52-55; Ex. 1002 ¶¶208-213, 217-218.

In attempting to exclude Cohen and Francesch as not reasonably pertinent, P2i adopts an overly narrow characterization of the problems confronting the '087 inventors. POR at 19-21. Indeed, P2i uses *precisely the same terms* to describe its asserted field of endeavor and the purported problem facing the inventors. *Compare* POR at 18 (“The Field of Endeavor of the '087 Patent is Plasma Polymerized Protective Coatings for Electronic Devices”) with *id.* at 19 (“The Problems Faced by the Inventors of the '087 Patent are Specific to Plasma Polymerized Protective Coatings for Electronic Devices”); *see also id.* at 20-21 (identifying “problem faced by the inventors” as “creating improved plasma polymerized protective coatings for electronic devices”), *id.* at 31 (defining problems as relating to “coatings for electronic devices” and “coatings formed via plasma polymerization processes”).

That articulation of the problem to be solved by the '087 patent is so intertwined with P2i's asserted field of endeavor that it “would effectively exclude consideration of any references outside that field.” *Donner*, 979 F.3d at 1360. In *Donner*, the Federal Circuit explained that “the problems to which the claimed invention and reference at issue relate must be identified and compared from the perspective of a [POSA] ... who is considering turning to the teachings of references

outside her field of endeavor.” *Id.* (citations omitted). Importantly, such a POSA would not “identify the problems so narrowly as to rule out all such art [outside her field of endeavor].” *Id.*

Here, a POSA “considering turning to the teachings of references outside” the narrow field of “Plasma Polymerized Protective Coatings for Electronic Devices”—the field of endeavor according to P2i—would not have dismissed Cohen simply because it did not describe plasma polymerization. Dr. Gleason explained that because Cohen described using free-radical activated chain polymerization, a POSA would have expected the same materials could be co-polymerized using plasma polymerization, which is another free-radical mediated chain polymerization process. Ex. 1002 ¶176 (citing Exs. 1036, 1037). Neither P2i nor its expert disputed Dr. Gleason’s testimony or corroborating evidence on this point. Accordingly, a POSA working on polymer protective coatings for electrical applications would reasonably have consulted Cohen. Ex. 1059 ¶10.

A POSA likewise would not have dismissed Francesch simply because its authors discussed focused applications for the disclosed coatings for linking biomolecules to a surface. Ex. 1059 ¶ 11. P2i argues only that “such properties are irrelevant to the problem addressed by the inventors of the ’087 Patent” in their efforts to provide “protective barrier coatings for electronic devices.” POR at 31. But as Dr. Gleason explained, numerous *other* properties of Francesch’s polymer

coatings were very much relevant to the problem at issue—a POSA would have recognized that Francesch’s copolymer coatings were highly water-repellent, crosslinked for increased stability, and had been successfully applied to silicon substrates using plasma polymerization. Ex. 1002 ¶¶208-213, 217-218. P2i does not dispute or even address any of that evidence. A POSA thus would have considered Francesch reasonably pertinent when pursuing protective coatings for electrical applications.

C. The petition was not required to raise analogous art arguments

P2i suggests it is “fatal” that the petition did not raise any analogous art issue regarding Cohen or Francesch. POR at 21, 31. P2i is wrong. Petitioner did not waive or forfeit anything by not preemptively rebutting P2i’s arguments. *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1379 (Fed. Cir. 2023) (“A petitioner is not required to anticipate and raise analogous art arguments in its petition[.]”) (citing 35 C.F.R. § 42.23). As here, a petitioner may “use its reply” to respond when the patent owner challenges a reference as non-analogous art. *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1010 (Fed. Cir. 2023) (citing *Sanofi*, 66 F.4th at 1379-80).

III. GROUND I – COHEN AND LEGEIN RENDERED THE CLAIMS OBVIOUS

A. A POSA Would Have Been Motivated to Combine Cohen and Legein

P2i disputes the motivation to combine Cohen and Legein. POR at 25-27. But rather than rebut the extensive evidence set forth in the petition and Dr. Gleason's supporting declaration, P2i advances conclusory arguments based on conclusory expert testimony. *See, e.g., Apple Inc. v. Qualcomm Inc.*, IPR2018-01315, Paper 40 at 50-51 (Nov. 10, 2022) (crediting petitioner's corroborated expert testimony over patent owner's conclusory expert testimony regarding motivation to combine); *Puzhen Life USA, LLC v. ESIP Series 2, LLC*, IPR2017-02197, Paper 24 at 28-29 (Feb. 27, 2019) (similar). None of P2i's arguments withstand scrutiny.

1. P2i reads limitations into the claims and mischaracterizes the knowledge of a POSA

P2i first argues (a) that the claims require "pulsed plasma polymerization, with specific optimized parameters" and (b) that a POSA would not have known about pulsed plasma polymerization or how to optimize parameters as needed to achieve the claimed coating. POR at 25-26. P2i is wrong on both counts.

P2i provides no serious justification for reading limitations about pulsing and "specific optimized parameters" into claim 1 via the term "protective cross-linked polymeric coating." POR at 25-26. The cited testimony of Dr. Senkevich is conclusory. Ex. 2007 ¶101. He cites only a passage from the '087 patent that

suggests pulsing the plasma increases retention of hydrophobic monomer structures which helps produce a hydrophobic coating. Ex. 1001 at 2:64-3:3. P2i does not argue this rises to disavowal. See *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (standard for specification disavowal is “exacting”). Nor does P2i point to any lexicography for the term “cross-linked polymeric coating” that references its desired process limitations. Additionally, claim 1 includes an express process limitation that says nothing about pulsed plasma or specific optimized parameters. Ex. 1001 at 18:29-35.

P2i also argues that a POSA “would not know the distinction between the various plasma polymerization techniques, nor how to optimize the numerous parameters for their chosen plasma polymerization technique to achieve the ‘protective cross-linked polymeric coating’ as disclosed in the ’087 Patent.” POR at 25-26. In the paragraphs cited for support, Dr. Senkevich contrasts **pulsed** plasma polymerization with **continuous** plasma polymerization and suggests the former is far beyond the knowledge and abilities of a POSA. Ex. 2007, ¶¶102-103. Dr. Senkevich states, for example, that “the pulsed plasma polymerization technique encompassed by the claims of the ’087 Patent could, at best, only be accomplished by highly sophisticated physicists and engineers with far more training and/or experience.” *Id.* ¶103.

As already discussed, the claims do not require **pulsed** plasma polymerization.

Even if they did, Dr. Senkevich's suggestion that a POSA would know nothing about the pulsed technique is wrong. Dr. Gleason previously explained that pulsed plasma polymerization was known to reduce applied power requirements and better preserve desirable functional groups in the monomer. Ex. 1002 ¶39. As further evidence, Dr. Gleason discusses a 1977 journal article and a 1985 textbook. Ex. 1059 ¶17 (discussing Exs. 1061, 1062). The 1998 Badyal PCT application referenced in the '087 patent's Background section touts pulsed over continuous plasma because it permits "greater level of structural retention" of the monomer compound. Ex. 1022 at 9:26-29. And both 2003 published PCT applications incorporated by reference into the '087 patent described similar benefits of pulsed plasma polymerization. Ex. 1063 at 5:8-11; Ex. 1064 at 5:20-22. Ex. 1059 ¶18.

At deposition, Dr. Senkevich suggested the duty cycle parameter is the key to effective use of pulsed plasma polymerization and a very short on-time during the duty cycle to prevent "RF self-bias" from developing, but that this was not sufficiently understood prior to the '087 patent. Ex. 1060 at 118:15-120:15; *see id.* at 119:11-14 ("We're talking about one- to 200-type ratio.").

Here, too, Dr. Senkevich's conclusory testimony should be rejected. The '087 patent itself says ***nothing*** about RF self-bias. And as to duty cycles, the patent merely describes a wide range that may be used. Ex. 1001 at 13:23-25 ("Optionally ... the ratio of the time on/time off is in the range of from 0.001 to 1, optionally

0.002 to 0.5.”); *see also id.* at 13:25-31 (providing exemplary durations for on and off periods).

The wide range of duty cycles in the '087 patent substantially overlap with the prior art. For example, Legein disclosed “a duty cycle from approximately .05 to 50%” which equates to a ratio between 0.0005 and .05. Ex. 1005 at 8:1-3. Legein’s duty cycle range thus overlaps with the duty cycles suggested by the '087 patent. Ex. 1059 ¶19. Even the “one- to 200-type ratio” Dr. Senkevich suggested is well-within Legein’s disclosed range. *Id.* As another example, the Badyal prior art disclosed an exemplary sequence in which “the power is on for 20µs and off for from 10000µs to 20000µs.” Ex. 1022 at 9:4-5. Badyal thus suggested very short on-times and duty cycle ratios between .001 and .002 which, again, overlaps with the '087 patent’s range. Ex. 1059 ¶19.

2. P2i mischaracterizes the petition and attacks a strawman

Next, P2i disputes Petitioner’s argument that known properties of the compounds disclosed in Cohen would have led a POSA to have a reasonable expectation of success that the resulting coating would exhibit water-repellant and barrier properties. POR at 26. Specifically, P2i disputes that Cohen suggests the disclosed compounds would have hydrophobic or barrier properties and notes that Legein does not discuss adding a crosslinker. *Id.*

For the point P2i specifically disputes, Petitioner cited two patent documents as well as detailed testimony from Dr. Gleason that cited to additional exhibits for corroboration. Pet. at 37 (citing Ex. 1002 ¶¶170, 177-181; Ex. 1054 ¶4; Ex. 1056 4:24-6:3). P2i completely ignores Petitioner's evidence, however, and P2i's arguments about Cohen and Legein are irrelevant. Petitioner argued that a POSA would have known that Cohen's copolymers would have been hydrophobic based on their chemical makeup, not that Cohen expressly described them as such. Pet. at 31-32, 36-37; Ex. 1002 ¶¶164, 177. Nor did Petitioner suggest Legein discussed adding a crosslinker. Instead, Petitioner relied on Cohen's crosslinker and argued that a POSA would have known that crosslinking would have improved durability and barrier properties of Cohen's polymer coatings. Pet. at 9-11, 32; Ex. 1002 ¶¶50-55, 164. None of this is disputed by P2i. P2i also fails to dispute Dr. Gleason's testimony that Legein disclosed acrylates, methacrylates, and organosilanes as preferred classes of compounds to provide protective liquid-repellent coatings on electronics through plasma polymerization. Ex. 1002 ¶177 (citing Ex. 1005 at Abstract; 4:22-5:2; 6:10-11, 10:14-26).

P2i also suggests a POSA would not understand "which" crosslinking reagent to use or "how much ... to use." POR at 26. As to "which" crosslinking reagent, Cohen clearly focuses on DVTMDS and the petition showed that it would have been obvious for a POSA to use that compound as the crosslinking reagent. Pet. at 30-

37. As to “how much,” none of the challenged claims require any particular amount of crosslinking reagent and the ’087 patent concedes a POSA is capable of determining the right proportion of crosslinker and monomer. Ex. 1001 at 14:26-36; *see also* Ex. 1059 ¶13. Moreover, Cohen discussed relative proportions by weight of DVTMDS and the monomer ingredients. Ex. 1004 at 2:31-49, 3:50-4:17 (providing examples with particular ingredient mixtures by weight). 6:5-9 (claim 6).

3. P2i distorts the capabilities of a POSA

Finally, P2i argues that a POSA would be incapable of carrying out the “extensive trial-and-error process” to effectively combine the prior art teachings to yield an effective protective coating. POR at 26-27 (citing Ex. 2007 ¶¶111-113, 116). This argument relies on conclusory testimony from Dr. Senkevich about the inherent unpredictability of pulsed plasma polymerization. Ex. 2007 ¶¶111-116; *see* 37 C.F.R. § 42.65(a) (conclusory expert testimony “entitled to little or no weight”).

P2i’s argument fails for at least two reasons. First, P2i agreed with Petitioner’s proposal that a POSA would have had “at least two years of experience with plasma polymerization techniques.” POR at 13. As Dr. Gleason explains, a POSA having two years of experience with plasma polymerization would be more than capable of modifying reaction parameters and analyzing properties of a resulting coating. Ex. 1059 ¶13. Dr. Gleason identifies several graduate students she advised who had no prior experience with plasmas and nevertheless performed

this type of work. *Id.*

Second, P2i's knocks on the capabilities of a POSA are belied by the '087 patent itself. In particular, the patent concedes that the "precise conditions" necessary to form an effective coating "can be determined using ***routine methods.***" Ex. 1001 at 14:66-15:7 (emphasis added). Moreover, the '087 patent is completely silent as to any specific parameters that should be used with a monomer containing an aryl group as claimed. Ex. 1059 ¶16. All five examples in the '087 patent use PFAC6—a monomer that includes no aryl group (either with or without halo substituents). *Id.*; Ex. 1060 at 155:9-12. If POSAs were as incapable as P2i and Dr. Senkevich suggest, they would be unable to make the claimed coating given the '087 patent's own limited guidance.

In *General Electric Co. v. United Tech. Corp.*, the Board rejected similar expert testimony based on "compelling intrinsic evidence." IPR2016-01289, Paper 34 at 34 (Aug. 31, 2020). There, the patentee's expert opined that titanium in a prior art coating would have "introduce[d] a host of variables that would have stymied an ordinarily skilled artisan" and precluded the proposed combination. *Id.* The Board highlighted that the patent-at-issue itself claimed the presence of titanium and yet "[t]he written description d[id] not hint at any need to account for the myriad variables, which [the expert] testifie[d] would have made impossible a determination of the compatibility of a TiMoSi₂ alloy with a BSAS layer." *Id.* (citations omitted).

The Board found that it “st[ood] to reason that this task was not impossible at the time of the invention, but could be left to the general knowledge and ordinary skill of an artisan in the field.” *Id.* Similarly here, the intrinsic evidence refutes Dr. Senkevich’s conclusory opinions that the innate unpredictability of plasma polymerization would have stymied a POSA and precluded the proposed combination. Indeed, the intrinsic evidence is even more compelling here given the express statement that “routine methods” are sufficient for determining effective reaction parameters.

B. Limitation 1[a] is Obvious

P2i repeatedly states that even if a POSA was motivated to combine Cohen and Legein, the resulting combination would not satisfy limitation 1[a]. POR at 24, 27. It is unclear from P2i’s arguments why it contends limitation 1[a] would not be satisfied. Presumably, this argument refers to the process limitations it improperly tries to read into the claim via the “coating” term as discussed above. However, to the extent P2i is referring to some other aspect of limitation 1[a], the argument should be deemed waived for not being clearly spelled out in the POR.

C. The challenged dependent claims are obvious

P2i does not separately argue any of the challenged dependent claims are nonobvious. Accordingly, the Board should cancel claims 2-3, 5, 7, and 9-14.

IV. GROUND 2 – FRANCESCH AND LEGEIN RENDERED THE CLAIMS OBVIOUS

A. A POSA Would Have Been Motivated to Combine Francesch and Legein

P2i challenges motivation to combine for Ground 2 as well, again without actually addressing the extensive evidence set forth in the petition and Dr. Gleason’s supporting declaration. POR at 34-41. Instead, P2i relies on a series of conclusory and overlapping arguments, none of which are persuasive.

First, P2i argues that while Francesch disclosed use of a crosslinking reagent, Francesch did not suggest use of the crosslinker improves barrier properties of the coating. POR at 35; Ex. 2007 ¶¶91. But the petition and Dr. Gleason explained that a POSA would have known that crosslinking improves strength, durability, and solvent resistance in polymer coatings—desirable properties of coatings in electronic devices. Ex. 1002 ¶¶209, 50-54. Dr. Gleason also explained that a POSA would have associated crosslinking with improved barrier properties because crosslinking creates more amorphous (less crystalline) films which reduce surface roughness and decrease the likelihood of grain boundaries which can permit water diffusion. Ex. 1002 ¶¶209 (citing Exs. 1014 ¶¶39, 1026 at 6550-53); Ex. 1002 ¶¶53-54. Beyond quibbling with the term “durable,” neither P2i nor Dr. Senkevich disputed Dr. Gleason’s testimony or cited evidence on these points. POR at 35; Ex. 2007 ¶¶91.

Second, P2i argues that a POSA would not know how to “optimize the [relevant] parameters to create a suitable barrier like the claimed in the ’087 Patent.” POR at 36 (citing Ex. 2007 ¶¶92-94). This argument is grounded in P2i’s mischaracterizations of the level of ordinary skill in the art which, as discussed, are refuted by the ’087 patent itself. *See supra* 16-18. Additionally, ’087 claim 1 does not even require a “barrier” coating. Ex. 1001 at 3:6-9; 3:16-19 (coating may be either liquid repellent layer or barrier layer).

Third, P2i makes a similar argument that a POSA would not have a reasonable expectation of success in combining Francesch and Legein because Francesch does not describe coating electronic devices or describe properties such as water contact angle or coating resistance. POR at 36 (citing Ex. 2007 ¶118). But the petition relied on Legein, not Francesch, for disclosures about using plasma polymerization to form protective coatings for electronic devices. Pet. at 52 (citing Ex. 1002 ¶208). With respect to the efficacy of Francesch’s coating, Petitioner explained that “[a] POSA would have recognized PFM as a monomer that would yield highly water-repellent coatings.” Pet. at 53 (citing Ex. 1002 ¶211). Petitioner also explained that a POSA would have known that the presence of an aryl group in PFM would have promoted water-repellency. Pet. at 53 (citing Ex. 1002 ¶¶170, 210). Petitioner also noted that “Legein taught that methacrylate monomers, including fluorinated methacrylate monomers, could produce protective, water-repellent coatings.” Pet. at 55 (citing

Ex. 1005, 11:14-12:12, 16:7-27; Ex. 1002 ¶¶217-18). P2i cannot and does not dispute *any* of these points.

Fourth, P2i takes issue with Francesch's reference to "easy reaction conditions" based on Dr. Senkevich's testimony about the unpredictability of plasma polymerization. POR at 36-37 (citing Ex. 2007 ¶¶119-120). As discussed, however, Dr. Senkevich's testimony is at odds with the '087 patent itself which states that reaction conditions "can be determined using routine methods" and contains no discussion of reaction conditions for use with the claimed aryl monomer. *See supra* 17-18.

Fifth, P2i repeats its assertion that '087 claim 1 requires *pulsed* plasma polymerization with *specific optimized parameters*. POR at 37. P2i's attempt to read these process limitations into claim 1 should be rejected for the reasons discussed above. *See supra* 11-14.

Sixth, P2i again argues that a POSA would be "overwhelmed" by the complexity of plasma polymerization and dissuaded from any attempt to combine or apply the prior art teachings. POR at 37-38 (citing Ex. 2007 ¶122). This argument also should be rejected for reasons already discussed. *See supra* 16-18.

Seventh, and relatedly, P2i argues that a POSA would not have been motivated to combine Francesch and Legein because neither reference teaches the specific parameters required for creating a successful barrier coating. POR at 38

(citing Ex. 2007 ¶¶123-124). But, as discussed, the '087 patent itself concedes that such parameters can be determined using routine methods and discloses no parameters for the claimed aryl monomer. *See supra* 17.

Eighth, P2i suggests a POSA would not have known how to deal with RF self-bias and “lack of retainment of the resulting chemical structure” when using Legein’s plasma polymerization techniques. POR at 38. But, as noted, the '087 patent itself says nothing about self-bias issues. *See supra* 13-14. As also discussed, it was well-known prior to 2015 that pulsed plasma polymerization enabled increased retention of functional groups. *See supra* 12-13.

The remaining paragraphs in Section VIII(B)(1) of the POR merely rehash bits and pieces of the arguments already discussed. *See* POR at 38-41. These arguments should be rejected for the reasons already given.

B. Limitation 1[a] is Obvious

As with Ground 1, P2i vaguely suggests that some aspect of limitation 1[a] is not satisfied even if the cited teachings of Francesch and Legein are combined. POR at 34, 40. As discussed above, to the extent this argument refers to anything other than the limitations P2i improperly tries to read into claim 1, the argument should be deemed waived.

C. The challenged dependent claims are obvious

P2i does not separately argue any of the challenged dependent claims are

nonobvious. Accordingly, the Board should cancel claims 2-4, 7, and 9-14.

V. CLAIM CONSTRUCTION

A. “Aryl”

P2i did not dispute Petitioner’s proposed construction for the term “aryl” as “an aromatic ring system.” Pet. at 20-23; Ex. 1002 ¶¶137-143. The Board should thus adopt Petitioner’s undisputed construction. *See, e.g., Comcast Cable Commc'ns, LLC v. Rovi Guides, Inc.*, No. IPR2019-00281, Paper 39 at 13 (June 26, 2020) (adopting petitioner’s proposed construction for “buffer memory” where construction was supported by cited evidence and Patent Owner did not respond).

B. Claim 1 Preamble

“In general, a preamble limits the invention if it recites essential structure or steps, or if it is ‘necessary to give life, meaning, and vitality’ to the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citation omitted). “Conversely, a preamble is not limiting ‘where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.’” *Id.* (citation omitted).

P2i argues that the preamble of claim 1 is limiting to aid its analogous art arguments. POR at 13-14. As an initial matter, the petition did not “assume[] that the preamble of claim 1” is a limitation as P2i asserts. *Id.* at 13. The petition merely took the position that the claims were obvious even if the preamble were treated as

limiting. Pet. at 24 (“To the extent this preamble is limiting, Cohen taught”), 46 (similar).

P2i makes two points to justify treating the preamble as limiting. First, P2i makes the circular argument that “Claim 1 is necessary to give meaning to what the claimed invention is, i.e., an electronic/electrical device or electronic/electrical component.” POR at 14. P2i does not explain *how* the preamble purportedly gives meaning to the claim or what would be structurally incomplete about a coating on a device or component regardless of whether the device or component were “electronic or electrical.”

Second, P2i points out that the body of the claim refers to a coating “on a surface of the device or component” and the preamble introduces the referenced “device” or “component.” POR at 14. But the one and only reference in the body of the claim to “the device or component” is part of a process limitation which itself is not limiting. *See Purdue Pharma L.P. v. Epic Pharma, LLC*, 811 F.3d 1345, 1354 (Fed. Cir. 2016) (district court was correct in disregarding process limitation in analyzing obviousness of product claim).

Moreover, the adjectives “electronic or electrical” which describe the device or component comprising the claimed coating are better understood as indicating an intended use of the coating than as imposing any meaningful structural limitation. In *Sharkninja, Inc. v. Dyson Tech. Ltd.*, the Board declined to treat the qualifier

“handheld” as limiting where the preamble recited a “handheld appliance” and the body of the claimed recited “the appliance.” IPR2024-00219, Paper 10 at 13 (June 5, 2024). The Board reasoned that “the phrase ‘handheld appliance’ indicates an intended use of an appliance, rather than a structural limitation, and so we do not understand it to further limit” the claims. *Id.* Here, too, the terms “electronic and electrical” merely signal an intended class of devices or components that may include the claimed protective coating, but those qualifiers do not impart any additional structure. Accordingly, these qualifiers are not limiting. *See also, e.g., Aisin Seiki Co., Ltd. v. Intellectual Ventures II LLC*, IPR2017-01539, Paper 43 at 10-14 (Dec. 12, 2018) (declining to treat “fluid-cooled” descriptor in preamble as limiting).

VI. CONCLUSION

Petitioner requests that the Board cancel the challenged claims.

Dated: December 30, 2024

Respectfully submitted,

/Patrick J. McKeever/

Lead Counsel

Patrick J. McKeever., Reg. No. 66,019

Back-Up Counsel

Andrew T. Dufresne, Reg. No. 66,636

Back-Up Counsel

Allison M. Glasunow, Reg. No. 72,737

Counsel for Petitioner

Favored Tech Corporation

PERKINS COIE LLP
33 East Main Street, Suite 201
Madison, Wisconsin 53703
(608) 663-7492 (phone)
(608) 663-7499 (fax)

CERTIFICATION OF WORD COUNT UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE totals 5594 words, excluding the parts exempted by 37 C.F.R. § 42.24(a). This word count was made by using the built-in word count function tool in the Microsoft Word 365 software used to prepare the document.

Dated: December 30, 2024

Respectfully submitted,

/Patrick J. McKeever/

Lead Counsel

Patrick J. McKeever., Reg. No. 66,019

Back-Up Counsel

Andrew T. Dufresne, Reg. No. 66,636

Back-Up Counsel

Allison M. Glasunow, Reg. No. 72,737

Counsel for Petitioner

Favored Tech Corporation

PERKINS COIE LLP
33 East Main Street, Suite 201
Madison, Wisconsin 53703
(608) 663-7492 (phone)
(608) 663-7499 (fax)

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true copy of Petitioner's Reply to Patent Owner's Response and Exhibits 1059-1067 have been electronically served on counsel for patent owner as follows:

Andrew D. Bochner
Reg. No. 68,189
BOCHNER PLLC
Email: andrew@bochner.law

Ariel Reinitz
Reg. No. 65,220
BOCHNER PLLC
Email: ariel@bochner.law

Service email: ecf@bochner.law

Dated: December 30, 2024

Respectfully submitted,

/Patrick J. McKeever/

Lead Counsel

Patrick J. McKeever., Reg. No. 66,019

Back-Up Counsel

Andrew T. Dufresne, Reg. No. 66,636

Back-Up Counsel

Allison M. Glasunow, Reg. No. 72,737

Counsel for Petitioner

Favored Tech Corporation

PERKINS COIE LLP
33 East Main Street, Suite 201
Madison, Wisconsin 53703
(608) 663-7492 (phone)
(608) 663-7499 (fax)