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Paper 42
Entered: January 22, 2026

CONFIDENTIAL – PROTECTIVE ORDER MATERIAL

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG DISPLAY CO., LTD.,
Petitioner,

v.

PICTIVA DISPLAYS INTERNATIONAL LTD.,
Patent Owner.

IPR2024-01094
Patent 8,558,223 B2

Before GRACE KARAFFA OBERMANN, GARTH D. BAER, and JASON M. REPKO, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

ORDER
Denying Petitioner's Motion to Strike (Paper 36)
Granting Patent Owner's Motion to Seal (Paper 33)

I. INTRODUCTION

Petitioner[1] challenges claims 1–4, 6, and 8–14 of U.S. Patent 8,558,223 B2 (Ex. 1001, "the '223 patent"). Paper 1 ("Pet."). Patent Owner[2] opposes the challenges. We instituted an *inter partes* review based on all challenges asserted in the Petition. Paper 11 ("Inst. Dec.").

We have jurisdiction under 35 U.S.C. § 6. Pursuant to 35 U.S.C. § 318, we enter this Final Written Decision, which is based on arguments and evidence presented in the Petition, Patent Owner's Response (Paper 19, "Resp."), Petitioner's Reply (Paper 24, "Reply"), and Patent Owner's Sur-reply (Paper 32, "Sur-reply"). In this Decision, we also take account of the final oral arguments heard on October 24, 2025. Paper 41.

For reasons that follow, we determine that Petitioner proves by a preponderance of the evidence that claims 1, 2, 6, and 8–14 of the '223 patent are unpatentable. We determine that Petitioner does not prove by a preponderance of the evidence that claims 3 and 4 are unpatentable. *See* Pet. 3 (summary of the challenge).

In addition, we *deny* Petitioner's Motion to Strike (Paper 36) and *grant* Patent Owner's Motion to Seal (Paper 33).

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[1] Petitioner identifies Samsung Display Co., Ltd., Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. as real parties-in-interest. Pet. 5.

[2] Patent Owner identifies Pictiva Displays International Ltd., "a subsidiary of Key Patent Innovations Limited," as "the owner" of the '164 patent. Paper 3, 1. Patent Owner further states that Key Patent Innovations Limited "is a wholly-owned subsidiary of New PP Licensing, LLC." *Id.*

II. BACKGROUND

A. Related Proceedings

The parties identify *Pictiva Displays Int'l Ltd. v. Samsung Electronics Co., Ltd.*, No. 2:23–cv–00495 (E.D. Tex.) ("the District Court action") as a related proceeding. Pet. 2; Paper 3, 1. In addition, Petitioner identifies *Pictiva Displays Int'l Ltd. v Samsung Elecs. Co., Ltd.*, No. 2:24–cv–00532 (E.D. Tex.), filed by Patent Owner on July 12, 2024, as "a replacement lawsuit" for the District Court action. Paper 7, 4.

B. The '223 Patent (Ex. 1001)

The '223 patent relates to "[a]n organic electronic component that includes a substrate, a first electrode, a second electrode, and an electron-conducting layer that is electrically conductively connected to at least one of the electrodes." Ex. 1001, 1:16–19. The '223 patent explains that "the electron-conducting layer can be obtained by joint vaporization of a metal complex, which comprises a central metal atom, with an organic compound." *Id.* at 1:20–22.

We reproduce below Figure 1 of the '223 patent.

FIG 1

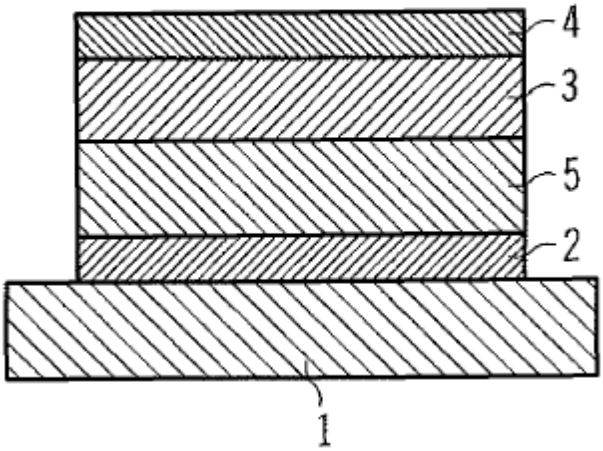
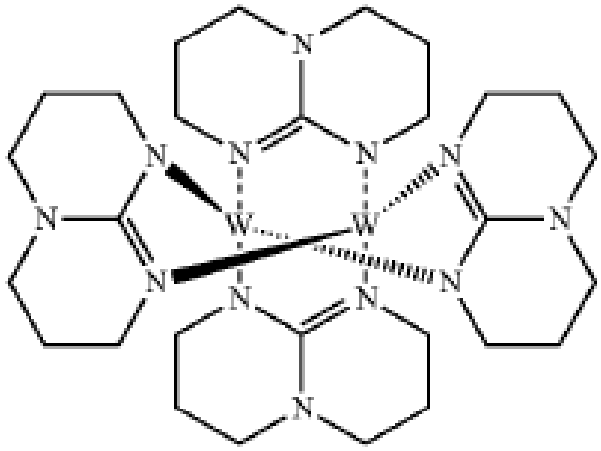


Figure 1 is a side view for an embodiment of an organic light-emitting diode ("OLED"). *Id.* at 14:56–58. The embodiment includes substrate 1, first electrode 2, second electrode 4, electron-conducting layer 3, and emitting layer 5. *Id.* at 15:14–17.

The '223 patent explains that, due to a voltage being applied to electrodes 2 and 4, "electrons are injected by one of the two electrodes, the cathode, into the layers 3 and 5 and holes are injected by the other electrode," "[e]xcitons can be formed by the recombination of the electrons and holes," and "radiation is emitted from the emitting layer 5." *Id.* at 15:17–21.

The '223 patent describes an electron-conducting layer being formed "by joint vaporization of a metal complex with an organic compound." *Id.* at 1:57–59. According to the '223 patent, the metal complex and organic compound "interact with one another in the gas phase or when they meet one another on the substrate surface," which "causes the compounds to be mutually coordinated." *Id.* at 1:60–64. The '223 patent further indicates that this coordination, as well as associated overlap of orbitals, permits additional electrons to be available for transportation in the organic electronic component, which improves electron conductivity, efficiency, and the serviceable life of the component. *Id.* at 2:6–16.

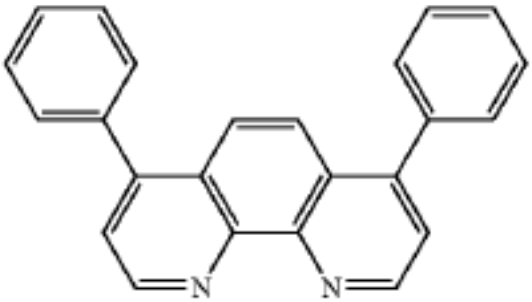
The metal complex may include two central atoms, given that, according to the '223 patent, metal complexes with "two central atoms are particularly well suited for the formation of chains." *Id.* at 2:44–45, 2:49–50. In one embodiment, the central atom or atoms may be selected from Cr, Mo, or W, with W being "a preferred central metal atom." *Id.* at 3:1–4. The '223 patent describes the $W_2(TBDA)_4$ complex, which we reproduce below.



Id. at 3:25–38. The above illustration shows schematically the structure of the $W_2(TBDA)_4$ complex. *Id*. at 3:22–25.

The ’223 patent further describes an organic compound that includes “a heteroaromatic compound which is conjugated with an aromatic compound via a C—C bond.” *Id.* at 4:1–4. The ’223 patent describes several organic compounds and one of those, compound VI, we reproduce below.

VI



Id. at 5:13–8:42. The above illustration shows the structure of compound VI, which, according to the ’223 patent, is among a number of compounds that “are particularly well suited as an organic compound for the electron-conducting layer.” *Id*. at 7:42–45.

With regard to coordination, the ’223 patent states:

> By suitable selection of the metal complexes, for example binuclear metal complexes, and suitable selection of the organic

> compounds such as for example the compounds I to XXIII, the joint vaporization of the metal complex with the organic compound in the gas phase or on the deposited surface results in interactions, so that the compounds coordinate to each other. The coordination is also retained when forming the electron-conducting layer. This coordination can result in the formation of two-dimensional chains or three-dimensional networks. These chains or networks are deposited as such in the vaporization process and are also present as such in the electron-conducting layer in the organic electronic component. The formation of chain-like or network-like structures enables additional electrons to be able to be transferred from the metal complexes to the organic compounds, said electrons are then available for charge transport in the electron-conducting layer.

Id. at 11:17–33.

C. Challenged Claims

Claims 1–4, 6, and 8–14 of the ’223 patent are at issue in this proceeding. Pet. 1. Claim 1, reproduced below, is illustrative of the claimed subject matter.

> 1. An organic electronic component, comprising:
>
> a substrate,
>
> a first electrode,
>
> a second electrode,
>
> an electron-conducting layer which is arranged in such a way that it is electrically conductively connected to at least one of the electrodes,
>
> wherein the electron-conducting layer is obtained by joint vaporization of a metal complex, which comprises a central metal atom, with an organic compound, wherein the organic compound comprises a heteroaromatic compound which is conjugated with an aromatic compound via a C–C bond.

Ex. 1001, 19:10–23.

D. Asserted Challenges to Patentability

The Petition sets forth the following challenges to patentability.

Claims Challenged	35 U.S.C. §[3]	Reference/Basis
1–4, 6, 8–14	103(a)	Werner[4]
1, 2, 6, 8–14	103(a)	Ma[5]

Pet. 3–4. Petitioner advances original and reply Declarations of Barry P. Rand, Ph.D. (Ex. 1003; Ex. 1020). Patent Owner advances the Declaration of Kirk S. Schanze, Ph.D. (Ex. 2041).[6] Petitioner, in the Reply, refers to an earlier-filed Declaration of Dr. Schanze. *See* Reply 19 (citing Ex. 2001).

III. ANALYSIS OF THE CHALLENGES

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

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[3] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103 effective March 16, 2013. Because the '223 patent's priority date is before the AIA's amendments to Section 103, this decision refers to the pre-AIA statutory provision. Neither party indicates the result would change under the AIA version.

[4] WO 2005/086251 A2, published September 15, 2005 (Ex. 1006). We refer to the certified English translation of Werner (Ex. 1005).

[5] Ma et al., *Organic light-emitting diodes based on new n-doped electron transport layer*, Synthetic Metals 158, 810–814 (2008) (Ex. 1007).

[6] This Declaration is misidentified as Exhibit 2042 where it first appears in Patent Owner's Exhibit List, but thereafter, the document is identified correctly as Exhibit 2041. *See* Resp. v, ix (Exhibit List).

Petitioner contends:

> A person of ordinary skill in the art ("POSA") at the time of the alleged invention of the '223 patent would have had a university degree in chemistry and additional expertise or a second university degree in the field of electrical engineering, particularly optoelectronics, or alternatively a university degree in electrical engineering and additional expertise or a second university degree in the field of chemistry. The person of ordinary skill in the art has spent several years studying the structure and function of organic optoelectronic components, in particular OLEDs, and has detailed knowledge of the chemical structure of light-emitting organic layers and the transport of charge carriers to these layers. In this respect, the person of ordinary skill in the art works at the interface between electrical engineering/physics (charge carrier transport and light emission processes in optoelectronic components) and chemistry, in particular organic chemistry (materials and layer stack combinations suitable).

Pet. 14 (citing Ex. 1003 ¶¶ 46–47). Patent Owner does not dispute Petitioner's contention. *See generally* Resp.

Neither party indicates that the result would change depending on the definition selected. We adopt Petitioner's uncontested proposed definition, because it is consistent with the disclosures of the asserted prior art references. *See* Ex. 1005, (code 57); Ex. 1007, 810[7] (abstracts of the references asserted in the patentability challenges).

B. Claim Construction

In an *inter partes* review, the Board construes the terms of a patent claim "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution

[7] Following the parties' convention, when citing Exhibit 1007, we refer to original page numbers, not page numbers added by Petitioner.

history pertaining to the patent." 37 C.F.R. § 42.100(b). Under that standard, claim terms generally are given their plain and ordinary meaning as would have been understood by the ordinarily skilled artisan at the time of the invention and within the context of the entire patent disclosure. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

We construe claim terms only as relevant to the parties' contentions and only to the extent necessary to resolve the issues in dispute. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

Neither party indicates that an express construction for any claim term is necessary to resolve the disputes at hand. Pet. 15; *see generally* Resp. On this record, we determine that no claim term requires express construction for purposes of this Decision. In our analysis of the challenges, however, we discuss the meaning of the terms "metal complex" and "central metal atom," which appear in claim 1 (Ex. 1001, 19:19–20) to the extent necessary to resolve Patent Owner's contention that Petitioner fails to establish that Ma invalidates claim 1. *See* Resp. 53, 56–58.

C. Assessment of the Patentability Challenges

For the following reasons, we determine that Petitioner demonstrates by a preponderance of the evidence that claims 1, 2, 6, and 8–14 are unpatentable as obvious over Ma. *See* Pet. 4 (asserted grounds).

1. Whether Ma Was Publicly Accessible

Under 35 U.S.C. § 311(b), a petitioner in an *inter partes* review may only challenge the claims of a patent based on "prior art consisting of patents or printed publications." Petitioner has the initial burden of production to

establish that there is prior art that renders the challenged claims unpatentable. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc*., 800 F.3d 1375, 1379 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc*., 545 F.3d 1316, 1327 (Fed. Cir. 2008)).

Whether Ma qualifies as a "printed publication" involves an inquiry into the facts and circumstances surrounding the reference's disclosure to members of the public. *In re Klopfenstein*, 380 F.3d 1345, 1350 (Fed. Cir. 2004). A reference is considered "publicly accessible" upon a satisfactory showing that the document has been "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." *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1350 (Fed. Cir. 2008); *see Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 10–11 (PTAB Dec. 20, 2019) (precedential).

Petitioner contends that Ma "is an article published in Synthetic Metals and available online as of August 29, 2008." Pet. 16. The '223 patent, in turn, issued on October 15, 2013, claims priority to a PCT application having a Section 371 date of September 8, 2011, and claims priority to two German applications having an earliest filing date of September 26, 2008. Ex. 1001, codes (45), (86), (30). Therefore, on this record, if Ma was publicly accessible as of August 29, 2008, as Petitioner contends, then Ma is prior art to challenged claims.

Patent Owner counterargues that Petitioner has not sufficiently demonstrated that Ma was publicly accessible as of August 2008. Resp. 39–54. In Patent Owner's view, "Ma was not indexed until December 2008," was not publicly available before that date, and does not qualify as prior art

because the challenged claims are entitled to the September 26, 2008, or November 7, 2008, priority date associated with foreign priority applications identified on the face of the ’223 patent. *Id.* at 34; *see id*. at 39 (citing Ex. 1001, code (30) (prior publication data of German priority applications asserted by Patent Owner). We take into account also the later-filed trial briefs and the arguments presented during the final hearing. *See* Reply 17–20; Sur-reply 15–19; *see generally* Paper 41 (hearing transcript).

The critical issue is whether Petitioner shows sufficiently that Ma was publicly accessible by August 29, 2008; that is, prior to even the earliest of the priority dates that Patent Owner asserts for the challenged claims. *See* Resp. 27; Ex. 1001, code (30).

As Petitioner points out, Ma bears an online publication date of August 29, 2008. Pet. 16; Reply 17. Petitioner asserts that Ma qualifies as a prior art printed publication because it is an article published in the journal *Synthetic Metals* and available online as of August 29, 2008, which is before the ’223 patent’s earliest claimed priority date. Pet. 16 & n.16. Patent Owner argues that Petitioner has not demonstrated that Ma was publicly accessible in August 2008 so as to qualify as prior art. Resp. 39–54; Sur-reply 15–19; *see generally* Paper 41 (hearing transcript, including the parties’ extensive arguments on this dispute).

“When there is an established publisher there is a presumption of public accessibility as of the publication date.” *VidStream LLC v. Twitter, Inc.*, 981 F.3d 1060, 1065 (Fed. Cir. 2020). Ma indicates on its face that it was published by Elsevier in the journal *Synthetic Metals*. Ex. 1007, 1. The record evidence strongly supports that *Synthetic Metals* was a reputable journal and that Elsevier was an established publisher.

For example, Petitioner presents unrebutted evidence that Elsevier is "a well-regarded publisher of a number of scientific journals" and that "Synthetic Metals was cited hundreds of times per year from 1999 - 2023 by other academic works." Ex. 1038 ¶¶ 14, 34; *see also* Ex. 2056, 185:10–11 ("Elsevier is a large publishing house with many journals."). Patent Owner's own witness, Dr. Schanze, acknowledges that *Synthetic Metals* was a published journal that was "popular in the 1980s and early 1990s" and that he published an article about organic light-emitting diodes in *Synthetic Metals*. Ex. 2001 ¶¶ 115–116; *see* Ex. 1021, 67:22–68:5[8] (Dr. Schanze, testifying during cross-examination, that "I can say affirmatively, I have published in Synthetic Metals.").

Patent Owner does not contest that *Synthetic Metals* was a reputable journal from an established publisher for articles relevant to the '223 patent's subject matter. *See* Resp. 32–35. Instead, Patent Owner criticizes Petitioner's lack of evidence showing "the search capability of *Synthetic Metals* website or other search tools during the relevant period to establish that" an ordinarily skilled artisan "exercising reasonable diligence could locate the online version before the critical date." *Id.* at 32; s*ee* Sur-reply 18.

Those arguments do not undermine Ma's status as prior art. Ma was sufficiently accessible to the interested public not because it was indexed or searchable, but because it appeared in *Synthetic Metals*, which was a reputable journal from an established publisher that was both reputable and well known in the relevant field. *See Voter Verified, Inc. v. Premier Election Solutions, Inc.*, 698 F.3d 1374, 1380 (Fed. Cir. 2012) (holding indexing unnecessary when article was posted to digest website that was well known

[8] We cite original page numbers not those added by Petitioner.

to the relevant community). We disagree with Patent Owner that the facts here differ in any material respect from those in *Voter Verified*. Resp. 33.

As for Ma's publication date, Ma states on its face that it "was available online on August 29, 2008" and lists the "journal homepage" for *Synthetic Metals* as "www.elsevier.com/locate/symnet." Ex. 1007, 1. These statements support exactly what they say—that Ma was available via Elsevier's online *Synthetic Metals* journal on August 29, 2008. Although Patent Owner speculates that different versions of Ma may have been published online, Patent Owner presents no evidence suggesting that there were such different versions. *See* Resp. 35–36, Sur-reply 17.

In any event, Petitioner presents persuasive evidence that "in cases where Elsevier journal articles that differ in substance from the first online published version, they are accompanied by a notation as to what has changed from the online article." Ex. 1037 ¶ 15. Against that backdrop, we find significant that Ma includes no notation that it was revised or changed from its August 29, 2008 publication date.

Absent any evidence to the contrary, Ma's statement that it "was available online on August 29, 2008" via Elsevier's *Synthetic Metals* journal is sufficient to establish that it was publicly available as of that date.

2. Obviousness Challenge Based on Ma

We turn next to whether Petitioner demonstrates by a preponderance of the evidence that claims 1, 2, 6, and 8–14 are unpatentable as obvious over Ma. Petitioner argues that Ma relates to an organic light-emitting diode made by providing glass (a substrate) coated with indium tin oxide ("ITO")

(an anode), a layer including BPhen and Liq, and a cathode. Pet. 55–57 (citing Ex. 1007, 810–811; Ex. 1003 ¶¶ 135–136).

Petitioner explains how the layer including BPhen and Liq serves as an electron-conducting layer that would be "electrically conductively connected to at least one of the electrodes" due to its arrangement between the anode and cathode. *Id.* at 57–58 (citing Ex. 1007, 811; Ex. 1003 ¶¶ 136–137). Petitioner further shows that Liq has the structure of the metal complex required by claim 1, BPhen has the structure of the organic compound required by claim 1, and Ma teaches joint vaporization of Liq and BPhen. *Id.* at 58–60 (citing Ex. 1007, 811; Ex. 1003 ¶¶ 139–142).

In sum, Petitioner advances claim charts that explain in detail how and why each limitation of the challenged claims would have been obvious over specific disclosures in Ma. *Id*. at 52–74.

Patent Owner opposes this challenge on three bases, asserting:

i. Ma neither expressly nor inherently discloses joint vaporization of Liq and BPhen (Resp. 53–56);

ii. Under Petitioner's claim construction, Liq is not a metal complex and has no central metal atom (*id*. at 56–58); and

iii. Petitioner has not presented competent evidence that Ma discloses additional limitations added by claims 2, 8, and 11–13 (*id*. at 48–70).

We address those three disputed issues in turn below.

i. <u>Joint Vaporization of Liq and BPhen</u>

A central dispute surrounds whether Petitioner demonstrates adequately that Ma deposits Liq and BPhen on a substrate by "joint vaporization" as required by the challenged claims. Ex. 1001, 19:18–19 (independent claim 1); *see id*. at 25:16 (claim 10, the only other independent challenged claim, which specifies "simultaneous vaporization").

Petitioner argues that Ma discloses an electron transport layer ("ELT") obtained by joint vaporization of Liq and BPhen. Pet. 58–59, 61 (citing Ex. 1003 ¶¶ 138–141, 144; Ex. 1007, Fig. 1, 811). Petitioner directs us to Ma's teaching "that 'a 50 nm-thick BPhen:LiQ ELT" is "co-deposited on the EML" (the emission layer) Pet. 17; Reply 21 (both briefs quoting Ex. 1007, 811; Petitioner's emphases omitted). Patent Owner disagrees, arguing that Petitioner falls short of demonstrating that "Liq and BPhen were jointly vaporized" in Ma's experiments. Resp. 54; *see* Ex. 1007, 811 ("experiments" section); *see also* Sur-reply 19–22. Patent Owner posits that Ma might use a process of "sequential co-evaporation" that involves rotating or moving "translationally" a substrate "to achieve a macroscopically uniformly weighted coating." Resp. 55 (citing Ex. 2041 ¶ 157).

Based on the information presented, we find Petitioner has the better position. Patent Owner admits that joint vaporization means "two materials vaporize together." Reply 21 (quoting Resp. 54). As Petitioner argues, "This is what Ma discloses." *Id*. We agree with Petitioner that Ma describes a "two-component" electron transport layer having a "thickness with one value." *Id*.; *see* Ex. 1007, 811 (reporting a "co-deposited" application of "BPhen:LiQ" that is "50 nm thick"). Ma's disclosure, thereby, strongly "indicates that the two components were vaporized together—as opposed to creating a 'macroscopically homogenous form'" prepared by sequentially vaporizing the individual components as Patent Owner "hypothesizes." Reply 21 (citing Ex. 1020 ¶¶ 42–44; Ex. 2041 ¶¶ 155–157); *see* Resp. 54–55; *see also* Ex. 1007, 811 (Ma's description of its device fabrication, appearing in the third paragraph of the experiments section).

Petitioner further advances evidence that "[p]reparing a layer that is 'macroscopically homogeneous' but potentially microscopically heterogeneous," as Patent Owner postulates, "would introduce excessive variability and render the data noncomparable and unreliable, thus undermining the experiment's purpose." Reply 21 (citing Ex. 1020 ¶ 44); *see* Resp. 54–55. Patent Owner presents no counterargument or evidence that is persuasive to undercut Petitioner's reasoning or evidence on that point. *See* Sur-reply 19–22. Petitioner also argues that an ordinarily skilled artisan would have recognized "that vaporizing materials together would best achieve Ma's objective of assessing the current density using different Liq doping percentages." Reply 22 (citing Ex. 1007, 811; Ex. 1020 ¶ 51). Here again, Petitioner's evidence on point stands uncontested. *See* Sur-reply 19–22 (declining to contest that point).

On this record, therefore, we agree with Petitioner that, as to the relevant disclosure in Ma, "the most natural interpretation of 'co-deposition' for forming a layer, particularly when there is nothing to indicate that the materials" are "vaporized sequentially," is that the materials are co-deposited by joint vaporization. Reply 22 (citing Ex. 1020 ¶ 46–51). We further agree that, "[u]nder a preponderance standard, Ma's disclosures are sufficient to render joint vaporization at least obvious." *Id*.

For the above reasons, we determine that Petitioner demonstrates by a preponderance of the evidence that Ma discloses joint vaporization as required by the challenged claims.

ii. <u>Metal Complex with a Central Atom</u>

Petitioner argues that Ma discloses joint vaporization of Liq, "a metal complex, which comprises a central metal atom" as specified in claim 1.

Ex. 1001, 19:19–20; *see id*. at 25:16 (claim 8, specifying "a metal complex"); Pet. 58–59. Petitioner adopts "Patent Owner's interpretation" of the term "central atom" here, but purports to reserve "the right to advance alternative arguments as appropriate in other proceedings, including the parallel district court proceeding." Pet. 58.

Patent Owner counterargues that Petitioner, without adequate explanation, applies a claim construction inconsistent with positions taken by Petitioner and its real party-in-interest in the District Court action. Resp. 56–58. But after the filing of Patent Owner's Response, the district court adopted the same construction of "a metal complex, which comprises a central metal atom" that Petitioner asserts in the Petition. Reply 23 (citing Pet. 58–59; Ex. 2055, 25).

None of the arguments raised by Patent Owner persuade us that the correct approach in this review is to apply a claim construction that neither party asserts in this case and differs from the one resolved in the District Court action based on full claim construction briefing and a *Markman* hearing. *See* Sur-reply 22–23; *see also* Ex. 2055 (district court's claim construction order). Patent Owner advances an approach that would likely lead to inconsistent opinions across the forums.

Patent Owner raises no other arguments on the merits of the factual dispute at hand. Resp. 56–58; Sur-reply 22–23. On this record, we find persuasive Petitioner's unopposed arguments and evidence that Ma discloses a metal complex with a central metal atom. Pet. 58–59.

iii. Additional Limitations of Claims 2, 8, and 11–13

Patent Owner raises additional arguments opposing the challenge as presented against claims 2, 8, and 11–13. Resp. 58–70; Sur-reply 23–28.

Taking account of the information presented, we find Petitioner has the better position on all claims. Pet. 61–66, 69–74; Reply 23–27.

Claim 2

The parties disagree about whether, in Ma's process, an organic compound (specifically, BPhen) "coordinates to the metal complex" (specifically, Liq) via "joint vaporization" as required by claim 2. Ex. 1001, 19:24–26. Petitioner alleges that Patent Owner admits, in infringement contentions filed in the District Court action, that Liq coordinates with compounds materially similar to BPhen in a manner that meets claim 2. Pet. 61–62 (citations omitted). Patent Owner disagrees, contending that those compounds materially differ from BPhen. Resp. 58–60.

We need not resolve that dispute because, even if we set aside Patent Owner's alleged admission, Petitioner directs us to other persuasive evidence that coordination, as specified in claim 2, is the natural result of Ma's joint vaporization of BPhen with Liq. Pet. 62 (citing Ex. 1001, 2:19–21; Ex. 1003 ¶ 146). We agree with Petitioner that the central atom of Liq naturally would coordinate "with the free electrons on the heteroatoms" of BPhen via Ma's joint vaporization process. *Id.*; Ex. 1003 ¶¶ 143–146.

Petitioner directs us to additional persuasive evidence that an ordinarily skilled artisan "would have understood that the lithium atom in Liq would," in fact, "coordinate to the nitrogen atom(s) (or the delocalized π-electrons) of BPhen," which, by the way, is "one of the organic compounds specifically disclosed in the '223 patent" as comprising "several coordination sites for metal complexes" via "joint vaporization." *Id*. at 62 (quoting Ex. 1001, 7:43–48); *see also id*. (citing Ex. 1001, 2:6-11, 2:19–21) Ex. 1003 ¶ 145, 146) (for additional well-supported arguments on point).

Patent Owner's counterarguments do not outweigh Petitioner's evidence on point, including Dr. Schanze's well-reasoned testimony that Ma discloses or suggests the coordination of BPhen and Liq as required by claim 2. *Compare* Pet. 61–62; Reply 23–25; Ex. 1003 ¶¶ 143–149*, with* Resp. 60–64; Sur-Reply 23–25. In particular, Patent Owner's position that "BPhen does not contain the triazine rings as in the accused products" does not outweigh Petitioner's evidence that Bhen, in fact, would coordinate with Liq in a manner that satisfies claim 2. *See* Resp. 59 (citing Ex. 1003 ¶¶ 140, 141; Ex. 1007, Fig. 1, 811). Petitioner also shows persuasively that Patent Owner's theory that Ma's conductivity stems from "short hopping length," not "coordination," is supported inadequately on this record. Reply 24–25 (citing Resp. 63 (citing Ex. 1007, 811)), Ex. 1032 ¶¶ 10, 28–29).

Claims 8 and 12

Claims 8 and 12 require "a chain-like structure" due to bridging between the organic compounds and metal complexes, "so that a network-like structure of the metal complexes is formed." Ex. 1001, 24:65–25:6. The parties disagree about whether Petitioner establishes by a preponderance of the evidence that Ma discloses, or at minimum suggests, this feature of the claimed invention. *See* Resp. 64–67; Reply 25–26; Sur-reply 25–26; *see also* Pet. 65–66, 71–72 (arguments and evidence specific to claims 8 and 12).

For reasons discussed above in connection with claim 2, we determine that Petitioner directs us to persuasive evidence that claims 8 and 12 are met by Ma's joint vaporization of Liq and BPhen. Petitioner shows persuasively that, in Ma's process, "BPhen 'comprises several coordination sites for metal complexes" and allows "for the formation of two-dimensional chains." Reply 25 (quoting Ex. 1001, 7:45–51, 11:11–52). For reasons well-stated by

Petitioner, Patent Owner's argument that "Liq's one central atom" changes the calculus is unpersuasive on this record. *Id*. at 26 (citing Resp. 64–65).

Although the '223 patent informs "that 'more than one central atom improves the possibility' of" forming the chain-like structure required by the claims, that is, at best, a preferred embodiment. *Id*. (quoting Ex. 1001, 2:42–44; citing Resp. 64–65). We determine that Petitioner demonstrates by a preponderance of the evidence that Liq (having only one central atom) and BPhen would form such a structure (Pet. 65–66 (for claim 8), 71–72 (for claim 12)). In our view, therefore, Petitioner demonstrates persuasively that BPhen, under the process conditions disclosed in Ma, would form the required chain-like or network-like structure with Liq, notwithstanding that Liq has just one central metal atom. Pet. 65–66, 71–72; 1003 ¶¶ 152–155.

We find unpersuasive Patent Owner's counterview that Petitioner fails to establish "that BPhen would form a chain-like structure with every metal complex, including with the lithium center under Ma's reaction conditions." Resp. at 64 (quoting Ex. 2041 ¶ 173). First, Petitioner, in order to prevail, need not establish that "BPhen would form a chain-like structure with ***every*** metal complex" (*id*. (Board's emphasis)), where the challenge is based on the combination of BPhen with a ***specific*** metal complex; namely, Liq. *See* Pet. 65. Second, we find credible and persuasive Dr. Rand's explanation of how and why the reaction conditions disclosed in Ma would have resulted in formation of "chain-like or network-like structures." *Id*. (citing Ex. 1003 ¶ 152). When we weigh the conflicting witness testimony on point, a preponderance of the evidence supports Petitioner's position. *Compare* Ex. 1003 ¶¶ 152–155*, with* Ex. 2041 ¶ 173.

Claim 11

Claim 11 depends from claim 10, but adds that "during the simultaneous vaporization the organic compound coordinates in the gas phase to the metal complex." Ex. 1001, 26:4–6. Petitioner directs us to evidence that, in Ma's process, BPhen coordinates with Liq "in the gas phase during simultaneous vaporization" as contemplated in the '223 patent. Pet. 60–70. Alternatively, Petitioner advances evidence that an ordinarily skilled artisan would have been prompted "to modify the parameters of deposition to achieve coordination of BPhen and Liq in the gas phase" because that artisan would have recognized that doing so would beneficially provide "a more uniform distribution" that allows "for the more efficient transfer of electrons" and a "more efficient use of materials." *Id*. at 70 (citing Ex. 1003 ¶ 165); *see id*. at 71 (citing Ex. 1003 ¶ 166) (explaining why an ordinarily skilled artisan would have recognized that coordination in the gas phase promotes those advantages).

Patent Owner opposes the challenge as to claim 11 for the same reason presented in connection with claim 2, which we dispose of above; namely, that "Petitioner has not presented any competent evidence that BPhen coordinates to Liq under Ma's process conditions." Resp. 67 (citing Pet. 69–70. Our reasoning above, presented in the context of claim 2, applies with equal force here.

Patent Owner also counterargues that Petitioner fails to advance "any competent evidence that" an ordinarily skilled artisan "would have known the conditions under which a substantial amount of BPhen would react with Liq in order to produce a more uniform distribution" or that such "conditions would be conducive to forming coordination in the gas phase." Resp. 69.

Relying on opinion testimony provided by Dr. Schanze, Patent Owner continues, "Petitioner has not shown a reasonable expectation of success" that BPhen would coordinate to Liq under such conditions. *Id*. (citing Ex. 2041 ¶¶ 189–191).

For reasons well-stated by Petitioner, however, we find that Patent Owner's position runs counter to express disclosures in the '223 patent. Reply 25–26. Alternatively, we determine that Petitioner demonstrates persuasively that an ordinarily skilled artisan would have been led to suitable gas-phase conditions and would have known how to achieve those conditions with a reasonable expectation of success. Reply 27 (citing Pet. 70–71; Ex. 1003 ¶¶ 108–110; 165; Ex. 2020 ¶¶ 55–59).

Claim 13

Claim 13 depends indirectly from claim 10 and directly from claim 12. Ex. 1001, 26:4, 26:10. Claim 13 specifies the method of "claim 12, wherein the degree of cross-linking of the electron-conducting layer is controlled by the ratio between the metal complex and the organic compound during vaporization." *Id*. at 26:10–13.

We agree with Petitioner that Ma discloses this additional limitation. Pet. 72–74 (and evidence cited therein). We do not agree with Patent Owner that Petitioner here relies on impermissible hindsight reconstruction to make out the challenge. Resp. 70. In particular, we do not deem necessary that an ordinarily skilled artisan "would have recognized" that Ma's process results in a degree of cross-linking controlled by the ratio specified in claim 13. *Id*. It is enough that Ma's process, in fact, results in that feature of the invention. Pet. 72–74 (and evidence cited therein); Reply 27 (pointing out that Patent Owner "does not dispute that Ma teaches claim 13"). In the alternative,

Petitioner directs us to persuasive evidence that the subject matter of claim 13 would have been well within the knowledge of an ordinarily skilled artisan before the critical date of the ’223 patent. *See* Pet. 72–74 (including citations to the prior art; namely, Ma (Ex. 1007, Fig. 5, 811, 812)).

Claims 6, 9, 10 and 14

Patent Owner presents no separate arguments about claims 6, 9, 10, and 14. *See* Resp. 58–70; Reply 27. Our reasoning above applies with equal force to these claims.

iv. Conclusion on the Obviousness Challenge Based on Ma

For the above reasons, we determine that Petitioner demonstrates by a preponderance of the evidence that the subject matter of claims 1, 2, 6, and 8–14 would have been obvious over the disclosure of Ma.

3. Obviousness Challenge Based on Werner

Petitioner asserts that the subject matter of claims 1–4, 6, and 8–14 would have been obviousness over Werner. Pet. 18–54. Each claim requires an electron-conducting layer formed by jointly or simultaneously vaporizing “a metal complex” with an “organic compound.” Ex. 1001, 19:18–20 (claim 1); 25:15–17 (claim 8) (the sole independent challenged claims).

A dispositive question is whether Petitioner demonstrates persuasively that Werner suggests jointly vaporizing “$W_2(hpp)_4$” (a “metal complex”) with “BPhen” (an organic compound) from among the materials disclosed in Werner. Pet. 1, 22–26. For reasons that follow, we agree with Patent Owner that the answer is no and, on that basis, we determine that Petitioner fails to prove that any claim is unpatentable over Werner.

We organize our analysis into three parts. First, we address whether Petitioner demonstrates by a preponderance of the evidence that an

ordinarily skilled artisan would have been led to select $W_2(hpp)_4$ and BPhen from Werner's disclosure to arrive at the claimed invention with a reasonable expectation of success. We assess that issue through the lens of a key factual circumstance, nowhere addressed in the Petition: Werner, across "45 pages" of disclosure, suggests "millions of metal complexes" (including $W_2(hpp)_4$ and "millions of candidate matrix materials" (including the organic compound BPhen). Resp. 6 (citing Pet. 22–66), 8.

Second, and relatedly, we address Patent Owner's argument that Petitioner cherry-picks $W_2(hpp)_4$ and BPhen from Werner's disclosure based not on any guidance provided in the prior art reference, but instead, based on impermissible hindsight reconstruction using the '223 patent as a guide. Resp. 3 (arguing this selection "is hindsight"); Sur-reply 9–10 (highlighting Petitioner's improper reliance on the '223 patent's disclosure).

Third, we address Petitioner's untimely attempt in the Reply to insert into this review a new challenge based on "***all*** of Werner's metal complexes" and "***many*** of Werner's matrix materials." Reply 4 (Board's emphasis). That is not the challenge stated in the Petition (Pet. 22–26) or the one upon which we instituted review (Inst. Dec. 22).

i. <u>Petitioner's Selection of the Combination of $W_2(hpp)_4$ and BPhen</u>

Petitioner, in the Petition, maps Werner's disclosure of "$W_2(hpp)_4$" to the claimed "metal complex" and "BPhen" to the claimed "organic compound." Pet. 1; *see id*. at 22–26; *see also id*. at 25 (also mentioning 3-(4-biphenylyl)-4- phenyl-5-tert-butylphenyl-1,2,4-triazole (C30H27N3) ("TAZ") as a potential replacement for BPhen).

The challenge, as stated in the Petition, is deficient because Petitioner homes in on the combination $W_2(hpp)_4$ and BPhen (or TAZ) without

addressing adequately, if at all, why an ordinarily skilled artisan would have selected that combination from among the millions (or trillions) of possible combinations disclosed in Werner, and without establishing that one would have done so with a reasonable expectation of success. Pet. 22–26; *see* Resp. 6–10 (Patent Owner's persuasive argument and evidence on point). We agree with Patent Owner that Werner, at minimum, discloses "'more than one thousand' organic compounds and '[o]ver 2,000' metal complexes." Resp. 7 (citing Ex. 2042, 137:3–18, 144:6–17 (cross-examination testimony of Petitioner's own witness, Dr. Rand).

Petitioner relies on a non-precedential panel decision of the Board, *Syngenta Crop Protection AG v. UPL Ltd.*, PGR2023-00017, Paper 58 (P.T.A.B. July 26, 2024)), to argue that a "prior art reference" that discloses "different classes of metals with multiple options for coating" may anticipate a claim even where the reference does "not explicitly disclose the specific metal and coating combinations." Reply 4 (quoting *Syngenta*, Paper 58 at 46). Petitioner argues that such "a reference is anticipatory because it 'effectively teaches' the specific combination; that other possibilities were included 'would not remove the resulting composition from the broad reach of [the claim].'" *Id.* (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.,* 780 F.3d 1376, 1382–1383 (Fed. Cir. 2015) (Petitioner's alteration)).

But as Patent Owner persuasively points out, "*Kennametal* and *Syngenta* involved only a few combinations." Sur-reply 3–4. Werner, by contrast, discloses millions (if not trillions) of combinations, which we view as a circumstance that materially distinguishes the facts here from those presented in *Kennametal* and *Syngenta*. *Id*. at 4.

The Federal Circuit's decision in *Kennametal*, an anticipation case, does not address, much less answer, whether Petitioner sets forth adequate reasons ***why*** it would have been obvious to select $W_2(hpp)_4$ and BPhen in combination, from among the extensive lists of metal complexes and matrix materials disclosed in Werner, or ***why*** one would have combined them with a reasonable expectation of success. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (The obviousness inquiry typically requires an analysis of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.") (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

The Petition is devoid of analysis in that regard. *See* Pet. 22–26. At best, Petitioner demonstrates that Werner discloses the "individual elements" of the proposed $W_2(hpp)_4$ and BPhen combination. Resp. 6 (citing *Virtek Vision Int'l ULC v. Assembly Guidance Sys.,* 97 F.4th 882, 886–887 (Fed. Cir. 2024)); *see* Pet. 22–26 (relevant portion of the statement of the obviousness challenge).

In the Reply, Petitioner asserts for the first time that the selection of $W_2(hpp)_4$ and BPhen in combination would have been a "matter of 'routine optimization,'" but that assertion comes too late in the Reply and, in any event, is not tethered adequately, if at all, to evidence sufficient to support the assertion. *See id*. at 5–6. Instead, Petitioner's own witness, Dr. Rand, indicates "he does not know what percentage of Werner's millions (or trillions) of combinations would be reasonably expected to succeed, as there are 'numerous criteria,' including processing conditions, device applications

and operation conditions, that one must consider." Resp. 10 (quoting Ex. 2056, 147:10–148:4).[9]

Nor is this "a case where there are but a finite number of predictable solutions where it might be 'obvious to try' one of a few possibilities." Resp. 7 (quoting *Ortho-McNeil Pharm. V. Mylan Labs., Inc.,* 520 F.3d 1358 (Fed. Cir. 2008)). The case law cited by Petitioner does not demonstrate otherwise. *See* Reply 5–7.

Under the unique and particular facts presented on this record, therefore, we determine that this obviousness challenge is deficient for failure to a identify a reason (for example, some guidepost in Werner) that would have led an ordinarily skilled artisan to the select the combination of $W_2(hpp)_4$ and BPhen, from among the millions (or trillions) of disclosed combinations in Werner, with a reasonable expectation of success. Pet. 22–26. For all practical purposes, Petitioner presents an obvious-to-try rationale in the Reply (*see id.*; Reply 5–7), but that rationale is untimely and, in any event, would be sufficient only if Petitioner could show that Werner discloses "an 'easily traversed, small and finite number of alternatives.'" Resp. 7 (quoting *KSR*). Petitioner has not done so here.

To be clear, Werner discloses no fewer than "2,000,000 possible combinations" of metal complex and organic compound combinations—even if we exclude the many other forms of matrix materials (aside from organic compounds) disclosed in Werner. *Id*. at 7. Petitioner does not contest

[9] Dr. Rand further indicates "that without conducting experiments, he could not predict conductivity for doping BPhen with even expressly disclosed species of metal complexes." *Id*. at 4 (citing Ex. 2056, 223:3–224:6). Petitioner does not respond persuasively to that evidence. *See* Sur-reply 7 (attempting to recast Dr. Rand's testimony, without persuasive effect).

this. *See generally* Reply; *see also* Sur-reply 3 (observing that "Petitioner does not dispute that Werner discloses millions, if not billions, of combinations with no specific reference to a combination of $W_2(hpp)_4$ and BPhen or TAZ," a second organic compound mentioned in the Petition for combination with $W_2(hpp)_4$ (citing Resp. 2-3)).

"Over 45 pages, Werner discloses no fewer than ten allegedly 'advantageous classes of compounds' having almost all types of ligands under the sun as possible 'electron-rich neutral metal complex[es].'" Resp. 8 (citing Ex. 1005, 10–55, 63, 64; Ex. 2041 ¶¶ 30–32, 40. Patent Owner's witness, Dr. Schanze, persuasively "explains that there would be millions of possibilities for just Compound I metal complexes and as least hundreds of thousands of possibilities for one of the most preferred embodiments." *Id*. (citing Ex. 2041 ¶¶ 41–43).

Importantly, moreover, "Werner does not explain the advantages or disadvantages" of the disclosed possibilities, "including over $W_2(hpp)_4$." *Id*. at 9 (citing Ex. 2041 ¶ 43). Even if we could tease out why the ordinarily skilled artisan would have been led to home in on a specific needle (namely, $W_2(hpp)_4$) in the haystack of metal complexes disclosed in Werner, we then would need to find a reason, nowhere articulated in the Petition (Pet. 22–26), why that artisan would have paired $W_2(hpp)_4$ with BPhen or TAZ, with a reasonable expectation of success, where Werner discloses "'more than one thousand' organic compounds" as potential matrix materials. *Id*. at 7.

Werner "lists millions of possible matrix materials with numerous substitutions of 4 pages of its specification." *Id*. at 9. (citing Ex. 1005, 55–59; Ex. 2041 ¶¶ 50–51). We find credible and persuasive Dr. Schanze's explanation that "there are over 3.5 million possibilities for just the metal

phthalocyanine compounds, one of the most preferred examples" disclosed in Werner. *Id*. (citing Ex. 2041 ¶¶ 47–50).

Petitioner does not attempt to explain, in the Petition, why an ordinarily skilled artisan "would have cherry-picked the BPhen/TAZ:$W_2(hpp)_4$ combination" from among the millions of possible combinations disclosed in Werner. Resp. 8. Nor does Petitioner address why one would have done so with a reasonable expectation of success. *See* Pet. 22–26; Resp. 10. To the contrary, on that crucial point, Petitioner's own witness, Dr. Rand, testifies "that he does not know what percentage of Werner's millions (or trillions) of combinations would be reasonably expected to succeed, as there are 'numerous criteria,' including processing conditions, device applications, and operation conditions, that one must consider." Resp. 10 (citing Ex. 2042, 147:10–148:4).

Patent Owner raises a plethora of defects in the challenge stemming from this issue (*id*. at 10–18), which Petitioner does not overcome persuasively (Reply 5–12). *See* Sur-reply (Patent Owner's well-stated reasons why its position on these issues is credible). There is a "complete absence of competent evidence" on this issue in the Petition, and that defect is not remedied in the Reply. Sur-reply 17; *see generally* Reply.

ii. Impermissible Hindsight Reconstruction

The sheer number of possible combinations disclosed in Werner, paired with the absence of analysis in the Petition, strongly suggests that, as Patent Owner argues, Petitioner has "cherry-picked" $W_2(hpp)_4$ and BPhen from the disclosure of the invention set forth in the '223 patent to reconstruct the claims. Sur-reply 8, 10; *see* Pet. 22–26 (for cherry-picking). Petitioner repeatedly refers to the disclosure of the '223 patent when discussing its

selection of that combination. Pet. 22–26. The taint of impermissible hindsight reconstruction permeates Petitioner's selection of a $W_2(hpp)_4$ and BPhen combination from among the millions of possible combinations disclosed in Werner. *Id*.; *see* Resp. 3 (arguing this selection "is hindsight"); Sur-reply 9–10 (highlighting Petitioner's improper reliance on the '223 patent's disclosure).

Petitioner does not counter effectively Patent Owner's well-supported position that the challenge is hindsight-driven. Reply 1–5. Instead, Petitioner argues that it engages in permissible "picking, choosing, and combining" from among the disclosures in Werner, because those disclosures are "not separate and distinct, but directly relate[] to each other." Reply 3–4 (citation omitted). We find that argument inadequately supported on this record for reasons well-stated by Patent Owner. *Compare id., with* Sur-reply 3–4 (Patent Owner's persuasive counterarguments and evidence).

iii. Improper New Theory Raised in the Reply

Another circumstance tends to confirm the weakness of the challenge articulated in the Petition: Petitioner pivots to an entirely new theory of unpatentability in the Reply, asserting that, although "the Petition highlight[s] $W_2(hpp)_4$ and BPhen as exemplary compounds, they are not the only ones that satisfy the claims." *Id*. at 4.

Petitioner improperly shifts to a broad (and untimely) argument that "***all*** of Werner's metal complexes satisfy claim 1, as do ***many*** of Werner's matrix materials (e.g., aryl-substituted phenanthrolines)." *Id*. (Board's emphasis) (citing Ex. 1020 ¶¶ 5–8). That argument changes the thrust of the challenge presented in the Petition. *See* Pet. 1, 22–26 (plainly relying on the combination of $W_2(hpp)_4$ and BPhen or TAZ). We decline to impose on

Patent Owner the burden of countering, in the Sur-reply, an untimely new challenge based on "***all*** of Werner's metal complexes" and "***many*** of Werner's matrix materials" (Reply 4), especially given that this particular new challenge implicates "millions of possible combinations" (Resp. 3).

iv. Conclusion on the Obviousness Challenge Based on Werner

For the above reasons, we determine that Petitioner does not establish by a preponderance of the evidence that any of claims 1–4, 6, and 8–14 are unpatentable as obvious over Werner.

IV. PETITIONER'S MOTION TO STRIKE (PAPER 36)

"Petitioner moves to strike Exhibits 2057, 2105, and 2106, the portion of Exhibit 2056 that includes Exhibit 2105 and 2106, and the portions of Patent Owner's Sur-reply that rely upon these exhibits." Paper 36, 1. Petitioner asserts that the materials sought to be stricken violate the Board's rule prohibiting the introduction of new evidence with a sur-reply. *Id*. (citing 37 C.F.R. § 42.23(b)). Patent Owner opposes the motion. *See generally* Paper 37.

Our Consolidated Trial Practice Guide informs that a reply that raises a new issue might not be considered. PTAB Consolidated Trial Practice Guide, 74 (Nov. 2019) ("CTPG"). "However, 'striking the entirety of a party's brief is an exceptional remedy that the Board expects will be granted rarely." This is not an exceptional case. We are capable of disregarding any new issues exceeding the proper scope of Patent Owner's Sur-reply and have done so in this Decision. CTPG at 80. Nor do we rely on Exhibits 2057, 2105, and 2106 in this Decision.

Based on the above circumstances, we *deny* Petitioner's Motion to Strike (Paper 36).

V. PATENT OWNER'S MOTION TO SEAL (PAPER 33)

Patent Owner moves to seal excerpts of Exhibits 2051 and 2052, as well as "one quotation" in Dr. Schanze's Declaration (Ex. 2041), which discusses Exhibit 2052. Paper 33, 1–2. Patent Owner files public versions of each document sought to be sealed. Based on our review of the motion and the public versions of the documents in the record, we determine that the redactions are appropriate and not excessive under the circumstances.

We grant Patent Owner's Motion to Seal, which is not opposed by Petitioner. *Id*. at 1. Patent Owner shows sufficiently that the documents sought to be sealed contain confidential information and good cause for sealing those documents. *Id*. at 5 (setting forth adequate reasoning keyed to the *Argentum* factors, which apply to this request). The Protective Order proposed by Patent Owner shall govern the exchange and disclosure of confidential information in this proceeding. *Id*. (Attachment A).

We highlight for the parties the following guidance: "Confidential information that is subject to a protective order ordinarily would become public . . . 45 days after final judgment in a trial." CTPG at 21–22. "A party seeking to maintain the confidentiality of information, however, may file a motion to expunge the information from the record prior to the information becoming public." *Id.* at 22; *see* 37 C.F.R. § 42.56.

VI. CONCLUSION[10]

For the above reasons, we determine that Petitioner demonstrates by a preponderance of the evidence that claims 1, 2, 6, 8–14 of the ’223 patent are unpatentable. We further determine that Petitioner does not demonstrate by a preponderance of the evidence that claims 3 and 4 of the ’223 patent are unpatentable. We *deny* Petitioner’s Motion to Strike (Paper 36). We *grant* Patent Owner’s Motion to Seal (Paper 33).

Our conclusions on the merits of the challenge are summarized in the following table.

Claims Challenged	**35 U.S.C. §**	**Reference/Basis**	**Claims Shown Unpatentable**	**Claims Not Shown Unpatentable**
1–4, 6, 8–14	102(b)	Werner		1–4, 6, 8–14
1, 2, 6, 8–14	103(a)	Ma	1, 2, 6, 8–14	
Overall Outcome			1, 2, 6, 8–14	3, 4

[10] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

VI. ORDER

It is

ORDERED that Petitioner proves by a preponderance of the evidence that claims 1, 2, 6, and 8–14 of the ’223 patent are unpatentable;

FURTHER ORDERED that Petitioner fails to prove by a preponderance of the evidence that claims 3 and 4 of the ’223 patent are unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Strike (Paper 36) is *denied*;

FURTHER ORDERED that Patent Owner’s Motion to Seal (Paper 33) is *granted*;

FURTHER ORDERED that the Protective Order attached to Patent Owner’s Motion to Seal (Paper 33, Attachment A) shall govern the disclosure and exchange of confidential information in this proceeding; and

FURTHER ORDERED that, within ten (10) business days from the date of entry of this Decision, Patent Owner and Petitioner shall jointly file a proposed redacted version of this Decision for public entry into the record.

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