

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA MOBILITY LLC,
Petitioner,

v.

LARGAN PRECISION CO., LTD.,
Patent Owner.

IPR2022-01156
Patent 9,784,948 B2

Before JON M. JURGOVAN, NORMAN H. BEAMER, and
JOHN D. HAMANN, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

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

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314 (2018), Motorola Mobility LCC (“Petitioner”) challenges the patentability of claims 1–4, 6–16, 18–24, 28, and 29 (“the challenged claims”) of U.S. Patent No. 9,784,948 B2 (Ex. 1001, “the ’948 patent”), owned by Largan Precision Co., Ltd. (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2022). For the reasons discussed herein, we determine that Petitioner shows by a preponderance of the evidence that the challenged claims are unpatentable.

A. Procedural History

Petitioner filed a Petition requesting *inter partes* review of the challenged claims of the ’948 patent. Paper 2 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 6. With our authorization, Petitioner filed a Preliminary Reply (Paper 7) addressing the issue of real parties-in-interest, and Patent Owner filed a Preliminary Sur-reply (Paper 8) in response. We instituted *inter partes* review of the challenged claims of the ’948 patent on the ground raised in the Petition. Paper 13 (“Dec. on Inst.”), 24.

Following institution, Patent Owner filed a Response to the Petition. Paper 19 (“PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response. Paper 21 (“Pet. Reply”). Patent Owner filed a Sur-reply to Petitioner’s Reply. Paper 23 (“PO Sur-reply”).

An oral hearing was held on October 12, 2023. A transcript of the oral hearing is included in the record. Paper 29 (“Tr.”).

B. Real Parties-In-Interest

Petitioner states that it “is the sole real party-in-interest.” Pet. x. Petitioner adds that “Motorola Mobility Holdings, LLC, owns 100% of Motorola Mobility LLC’s stock and is, indirectly, a wholly owned subsidiary of Lenovo Group Limited.” *Id.* Patent Owner states that it is the owner of the challenged patent. Paper 16, 1.

C. Related Matter

The parties identify *Largan Precision Co. v. Motorola Mobility LLC*, No. 4:21-cv-09138-JSW (N.D. Cal.) as a matter that may affect, or be affected by, a decision in this proceeding. Pet. x; Paper 16, 2.

D. The Challenged Patent

The ’948 patent relates to “an imaging lens system used in a mobile phone camera.” Ex. 1001, 1:21–23. The patent describes “there is an increasing demand for compact imaging lenses featuring better image quality.” *Id.* at 1:33–34. The ’948 patent explains that a “conventional compact lens assembly for mobile phone cameras . . . generally comprises four lens elements.” *Id.* at 1:35–38. However, the ’948 patent goes on to explain that “the four-element lens has become insufficient for a high-end imaging lens assembly due to the rapid increase in the resolution of mobile phone cameras, the reduction in the pixel size of sensors and the increasing demand for compact lens assemblies featuring better image quality.” *Id.* at 1:38–43. Thus, “a need exists in the art for an imaging lens system applicable to high-resolution mobile phone cameras while maintaining a moderate total track length.” *Id.* at 1:44–47.

To address this need, the ’948 patent describes an image capturing lens assembly comprising five lens elements having specific characteristics

and properties. Figure 1 of the '948 patent, reproduced below, illustrates one embodiment of the '948 patent's image capturing lens assembly.

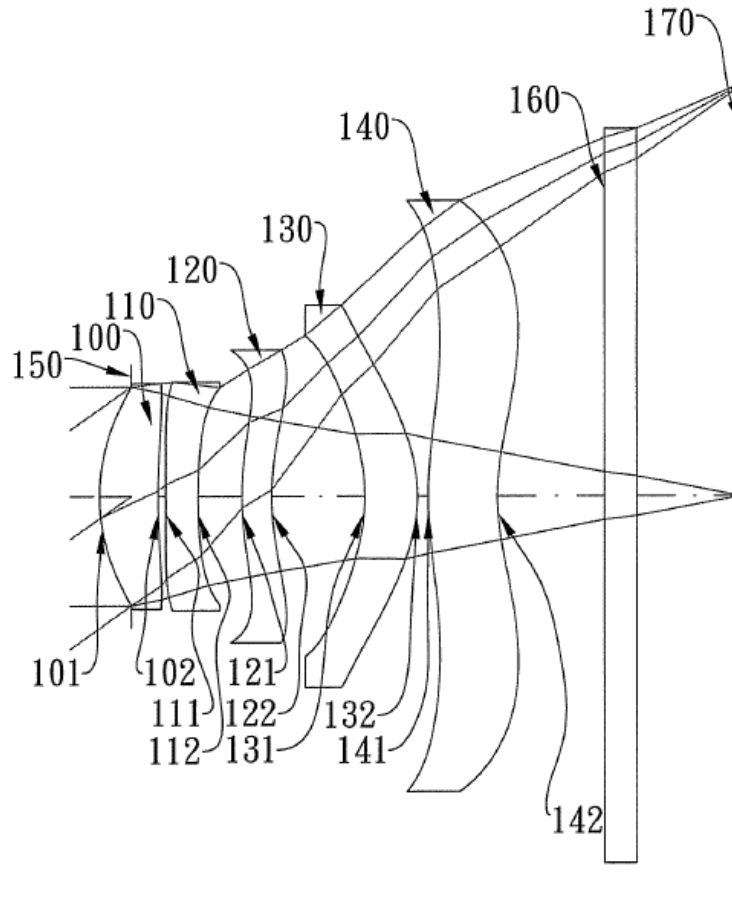


Figure 1 shows an image lens system comprising five lens elements including, in order from the object side to the image side: a plastic first lens element 100 with positive refractive power having a convex object-side surface 101 and a concave image-side surface 102 the object-side and image-side surfaces 101 and 102 being aspheric; a plastic second lens element 110 with negative refractive power having a convex object-side surface 111 and a concave image-side surface 112, the object-side and image-side surfaces 111 and 112 being aspheric; a plastic third lens element 120 with negative refractive power having a convex object-side surface 121

and a concave image-side surface 122, the object-side and image-side surfaces 121 and 122 being aspheric; a plastic fourth lens element 130 with positive refractive power having a concave object-side surface 131 and a convex image-side surface 132, the object-side and image-side surfaces 131 and 132 being aspheric; and a plastic fifth lens element 140 with negative refractive power having a convex object-side surface 141 and a concave image-side surface 142, the object-side and image-side surfaces 141 and 142 being aspheric and each of which being provided with at least one inflection point. *Id.* at 7:9–34. Aperture stop 150 is disposed between an imaged object and the first lens element 10. *Id.* at 7:34–35. The imaging lens system further comprises an IR filter 160 disposed between the image-side surface 142 of the fifth lens element 140 and the image plane 170 and the IR filter 160 has no influence on the focal length of the imaging lens system. *Id.* at 7:36–40.

The '948 patent explains that such an arrangement of optical elements can effectively correct the aberrations to improve image quality of the system, reduce the total track length of the imaging lens system and achieve a wide field of view. *Id.* at 1:66–2:2.

E. Priority Chain of the '948 Patent

The '948 Patent issued from U.S. Patent Application No. 15/067,369, filed on March 11, 2016, which claims priority to U.S. Patent Application No. 14/168,809, filed on Jan. 30, 2014, now U.S. Patent No. 9,465,197, which claims priority to U.S. Patent Application No. 13/848,150, filed on Mar. 21, 2013, now U.S. Patent No. 8,736,981, which claims priority to U.S. Patent Application No. 13/433,438 (“the 2012 application”) filed on Mar. 29, 2012, now U.S. Patent No. 8,520,324, which claims priority to U.S.

Patent Application No. 12/654,912, filed on Jan. 8, 2010 (“Chen-069”), now U.S. Patent No. 8,233,224, which claims priority under 35 U.S.C. 119(e) to Taiwan Application No. 098123694 A, filed on July 14, 2009.

F. Illustrative Claim

Of the challenged claims, claims 1, 14, and 23 are independent.

Claim 1 is illustrative of the challenged claims, and reads as follows:

1. An imaging lens system including, in order from an object side to an image side:
 - a first lens element having a concave image-side surface;
 - a second lens element;
 - a third lens element with negative refractive power having a convex object-side surface and a concave image-side surface, the object-side and image-side surfaces thereof being aspheric;
 - a fourth lens element with positive refractive power having a convex image-side surface; and
 - a fifth lens element with negative refractive power having a convex object-side surface and a concave image-side surface, the object-side and image-side surfaces thereof being aspheric, each of the object-side and image-side surfaces thereof being provided with at least one inflection point;wherein there are a total of five lens elements in the imaging lens system, and a gap exists between every two adjacent lens elements along an optical axis of the imaging lens system.

Ex. 1001, 12:8–26.

G. Instituted Ground of Unpatentability

We instituted trial based on the following ground of unpatentability, which is the only ground of unpatentability raised in the Petition:

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–4, 6–16, 18–24, 28, 29	102	Chen-069 ²

Pet. 4, 41–65. Petitioner submits in support of its arguments the Declaration of Tom. D. Milster, Ph.D. (Ex. 1003). Patent Owner submits a declaration of Dr. Milster’s from another proceeding in support of arguments we do not reach.

II. LEVEL OF ORDINARY SKILL IN THE ART

To determine whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)). “[O]ne or more factors may predominate.” *Id.*

In our Decision on Institution, we adopted the definition Petitioner proposes for one having ordinary skill in the art at the time of the invention of the ’948 patent. Dec. on Inst. 12–13. Namely, we found that one of

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 102 that became effective on March 16, 2013. Because the earliest effective filing date in light of our findings below for the ’948 patent is after March 16, 2013, we apply the AIA version of the statutory basis for unpatentability. However, our analysis herein would not change if we apply the pre-AIA version of the statutory basis.

² US 2011/0013069 A1, published Jan. 20, 2011 (Ex. 1012, “Chen-069”).

ordinary skill in the art at the time of the invention of the '948 patent would have had “(i) a Bachelor’s degree in Physics, Optical Sciences, or equivalent education or training, as well as (ii) approximately three years of experience in designing multi-lens optical systems.” *Id.* at 12 (quoting Pet. 13–14 (citing Ex. 1003 ¶ 28)). We also found that “[l]ack of work experience could have been offset by additional education, and vice versa,” and that one of ordinary skill in the art “would have understood the fundamentals of optical aberration theory, and understood and used standard techniques for making lenses cheaper and more effective, especially for lens systems used in mobile devices.” *Id.* (quoting Pet. 14; Ex. 1003 ¶¶ 28, 30). We also agreed with Petitioner and found that one of ordinary skill in the art “would have known how to use lens design software such as Code V, Oslo, and ZEMAX, and would have taken a lens design course or had equivalent training.” *Id.* (quoting Pet. 14; Ex. 1003 ¶ 29). We also agreed with Petitioner and found that one of ordinary skill in the art “would have regularly used such software to create new lens designs, often using pre-existing lens designs as a starting point and then performing routine optimizations to reach a desired design.” *Id.* at 12–13 (quoting Pet. 14; Ex. 1003 ¶ 29).

Patent Owner does not identify a level of skill in the art that one would have had at the time of the invention of the '948 patent or identify any shortcoming in Petitioner’s formulation. *See* PO Resp. 16–17.

Because Petitioner’s definition of the level of skill in the art is consistent with the '948 patent and the asserted prior art, we maintain it for purposes of this Final Written Decision. *See Okajima v. Bourdeau*, 261 F.3d

1350, 1355 (Fed. Cir. 2001); *In re GPAC*, 57 F.3d at 1579; *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

III. CLAIM CONSTRUCTION

Because the Petition was filed after November 13, 2018, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019); 83 Fed. Reg. 51,340, 51,340–41, 51,343 (Oct. 11, 2018). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner “contends that no claim terms require specific construction to resolve the unpatentability issues presented” in the Petition, and that it “applies the plain and ordinary meaning of all claim terms.” Pet. 22. To that end, Petitioner argues that the plain and ordinary meaning of the challenged independent claims includes lens systems having first and second lens elements with (i) the same refractive power (i.e., both positive or both negative) and (ii) opposite refractive power (i.e., one positive and the other negative). *Id.* at 32–34.

Patent Owner argues that construing the challenged “claims to include first and second lens elements having the same refractive power . . . is improper.” PO Resp. 21. According to Patent Owner, one of ordinary skill in the art “would construe the [’]948 [p]atent claims to include first and second lens elements in the form of a ‘doublet,’ which requires the respective lens elements to have opposite refractive power, and thus includes only configurations” of “positive-negative” and “negative-positive” for the first and second lens elements, respectively. *Id.* at 20–21. In other words, “[t]he proper construction of the ’948 [p]atent claims is that the first and second lens elements may have positive-negative or negative-po[sitive] refractive powers, but would not include first and second lens elements having the same refractive polarity,” according to Patent Owner. *Id.* at 26.

Thus, the parties agree that the challenged claims should be construed to encompass at least a lens system having a first lens element with a *negative* refractive power and a second lens element with a *positive* refractive power. *See, e.g.*, Pet. 33; PO Resp. 21. We conclude that such a lens system is consistent with the plain language of the challenged claims. *See, e.g.*, Ex. 1001, 12:8–26, 13:14–38, 14:16–46 (reciting first and second lens elements without reciting a specific refractive power polarity for the independent claims). And we determine that no claim terms require further construction in light of our findings below. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’”).

IV. GENERAL PRINCIPLES OF LAW

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable under 35 U.S.C. § 102 “if each and every [claim] limitation is found either expressly or inherently in a single prior art reference.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1273 (Fed. Cir. 2017). “A claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely probably or possibly present.” *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192 (Fed. Cir. 2003) (citing *Rosco, Inc. v. Mirror Lite, Co.*, 304 F.3d 1373, 1380 (Fed. Cir. 2002)).

V. ALLEGED ANTICIPATION BY CHEN-069

Petitioner argues that claims 1–4, 6–16, 18–24, 28, and 29 of the ’948 patent are anticipated by Chen-069. Pet. 41–65. For the reasons that follow, we determine that Petitioner shows by a preponderance of the evidence that Chen-069 anticipates these claims.

A. Overview of Chen-069

Chen-069 is the published version of U.S. Application No. 12/654,912 which is an ancestor of the ’948 patent. Ex. 1012, codes (10), (21).

Chen-069 was published on January 20, 2011. *Id.* at code (43). Chen-069 shares its disclosure with the '948 patent with only minor differences. For an overview of Chen-069, refer to the above overview of the '948 patent.

B. Whether Chen-069 is Prior Art

Petitioner argues that the '948 patent does not benefit from the filing date of the 2012 application in its chain because the 2012 application does not support the full breadth of the challenged claims. Pet. 23–40; Pet. Reply 12–22. Thus, according to Petitioner, Chen-069, which was published before the 2012 application, is prior art to the '948 patent even though Chen-069 is a published ancestor application of the '948 patent. Pet. 42–44. For the reasons below, we agree with Petitioner and find that Chen-069 is prior art to the challenged claims of the '948 patent.

“For a claim to be entitled to the ‘the filing date of an earlier application under 35 U.S.C. § 120, each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112.’” *Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1373 (Fed. Cir. 2023) (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1571 (Fed. Cir. 1997)). That means “[e]ach application in the chain must therefore ‘reasonably convey[] to those skilled in the art that the inventor had possession of the [later-claimed] subject matter as of the filing date.’” *Id.* (quoting *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc)) (second and third alterations in original).

“One shows that one is ‘in possession’ of *the invention* by describing *the invention*, with all its claimed limitations.” *Lockwood*, 107 F.3d at 1572. “One does that by such descriptive means as words, structures, figures,

diagrams, formulas, etc., that fully set forth the claimed invention.” *Id.* In some instances, a patentee can rely on information that is well known in the art to satisfy the written description requirement. *Ariad Pharm.*, 598 F.3d at 1351 (“[T]he level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.”). Still, “the test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.” *Id.*

The relevant claim terms first must be construed. *See X2Y Attenuators, LLC v. Int’l Trade Comm’n*, 757 F.3d 1358, 1365 (Fed. Cir. 2014) (Reyna, J., concurring) (“Where the claims have not been properly construed, the full scope of the claim is unknown, thereby rendering baseless any determination of written support in an earlier patent.”). Here, as we discuss above, the parties agree that the scope of the challenged claims includes having a first lens element with a *negative* refractive power and a second lens element with a *positive* refractive power. *See supra* Section III.

Next, we look to the four corners of the specification from the perspective of one of ordinary skill in the art. *Ariad Pharms.*, 598 F.3d at 1351. In doing so, we agree with Petitioner and find that the 2012 application only describes lens element systems with a first lens element having a positive refractive power and a second lens element having a negative refractive power. *E.g.*, Pet. 6–11.

The Summary of the Invention section of the 2012 application repeatedly describes the “present invention” as providing a lens system having “a first lens element with positive refractive power having a convex object-side surface[and] a second lens element with negative refractive power.” Ex. 1005, 2:5–9; *see also id.* at 3:14–19 (same). The Detailed Description of the Preferred Embodiments section likewise describes the “present invention [as] provid[ing] an image lens system including . . . a first lens element with positive refractive power having a convex object-side surface[and] a second lens element with negative refractive power.” *Id.* at 5:9–12; *see also id.* at 8:26–9:3 (same). Similarly, the 2012 application’s abstract recites that “[t]his invention provides an imaging lens system including . . . a first lens with positive refractive power having a convex object-side surface[and] a second lens with negative refractive power.” *Id.* at 28:3–6.

In addition, each of the 2012 application’s figures that illustrate a lens system in accordance with its invention (i.e., Figures 1, 3, and 5) show that the first lens has a positive refractive power and the second lens has a negative refractive power, and the specification’s accompanying text for these figures describes the first and second lenses as such. *Id.* at 12:21–13:1, 15:25–16:10, 18:25–19:10, Figs. 1, 3, 5; *see also id.* at Figs. 7, 9, 11 (providing data tables that show that the first lens has a positive refractive power and the second lens has a negative refractive power based on the given focal length polarity); Ex. 1003 ¶ 67.

In addition, the 2012 application explains the reasons for the polarity of the lenses in the lens system, including for the first and second lens elements:

[T]he first lens element has positive refractive power and a convex object-side surface so that the total track length of the imaging lens system can be effectively reduced; the second lens element has negative refractive power so that the chromatic aberration of the system can be favorably corrected; the third lens element may be a lens element with either negative or positive refractive power; the fourth lens element has positive refractive power so that the positive refractive power of the first lens element can be effectively distributed to reduce the sensitivity of the imaging lens system; the fifth lens element with negative refractive power and the fourth lens element with positive refractive power form a telephoto structure, thereby the total track length of the imaging lens system can be effectively reduced. When the third lens element has negative refractive power, the Petzval Sum of the system can be more effectively corrected, enabling the focal plane to become more flat near the periphery. When the third lens element has positive refractive power, the high order aberrations of the system can be favorably corrected.

Ex. 1005, 5:20–6:9 (emphasis added); *see also id.* at 9:12–26 (similarly describing reasons for lens elements’ polarity, including for the first and second lens elements). In particular, the first lens element has positive refractive power to reduce the total track length and the second lens element has negative refractive power to correct chromatic aberration. *Id.* at 5:20–24.

Moreover, the 2012 application discloses that “the fourth lens element has positive refractive power so that the positive refractive power of the first lens element can be effectively distributed to reduce the sensitivity of the imaging lens system.” *Id.* at 5:26–6:2. In other words, the particular structure for the fourth lens depends on the first lens having positive refractive power. *Id.* We also note that the 2012 application discloses that “the third lens element may be a lens element with either negative or

positive refractive power,” which we view as evidencing that when the refractive power of a lens may have either polarity for its invention, that the 2012 application discloses such. *Id.* at 5:24–25; *see also* Ex. 1003 ¶ 65 n.12 (testifying that a power-agnostic lens element was specified).

In addition, the independent claims filed with the 2012 application each recite “a first lens element with positive refractive power having a convex object-side surface” and “a second lens element with negative refractive power.” Ex. 1005, 23 (reciting claim 1), 25 (reciting claim 17).

In sum, we find that the 2012 application only describes lens element systems having a first lens element having a positive refractive power and a second lens element having a negative refractive power. Moreover, in light of the above discussed disclosures in the 2012 application, we find that the inventor of the 2012 application considered that having positive refractive power for the first lens element and negative refractive power for the second lens element to be an essential element of his invention. *See supra.* In addition, we find persuasive Dr. Milster’s testimony concerning the 2012 application’s disclosures and that one of ordinary skill in the art would have understood “that the defining feature of the first element is that it has positive power, and the defining feature of the second element is that it has negative power.” *See* Ex. 1003 ¶¶ 63–68, 70–71. We find this testimony is consistent with the 2012 application.

We find unavailing Patent Owner’s argument that a negative-positive configuration is supported because the 2012 application discloses in its last paragraph that “[t]he preferred embodiments depicted above are exemplary and are not intended to limit the scope of the present invention.” PO Resp. 31 (quoting Ex. 1005, 22:4–6) (emphasis omitted). The entirety of this

paragraph reads as follows:

It is to be noted that TABLES 1–6 (illustrated in Figs. 7–12 respectively) show different data of the different embodiments, however, the data of the different embodiments are obtained from experiments. Therefore, any imaging lens system of the same structure is considered to be within the scope of the present invention even if it uses different data. The preferred embodiments depicted above are exemplary and are not intended to limit the scope of the present invention. TABLE 7 (illustrated in Fig. 13) shows the data of the respective embodiments resulted from the equations.

Ex. 1005, 21:25–22:7. We view the essence of this paragraph as the portion that recites “any imaging lens system *of the same structure* is considered to be within the scope of the present invention even if it uses different data.” *Id.* (emphasis added). In other words, particular data values may vary, but the same disclosed structure (e.g., the positive-negative configuration for the first and second lenses) is maintained. *Id.*

Nor do we find that any portion of this paragraph (e.g., “[t]he preferred embodiments depicted above are exemplary and are not intended to limit the scope of the present invention”) reasonably conveys that the inventor had possession of a negative-positive configuration for the first and second lenses. *Id.*; *see also D Three Enterprises, LLC v. SunModo Corp.*, 890 F.3d 1042, 1051 (Fed. Cir. 2018) (finding insufficient, for the purpose of written description support, boilerplate language at the end of a specification that one of ordinary skill in the art would recognize that certain modifications, permutations, additions and sub-combinations are within the scope of the invention).

We also find unavailing Patent Owner’s reliance on *Honeywell Int’l, Inc. v. United States*, 609 F.3d 1292, 1301 (Fed. Cir. 2010). PO Resp. 29–

31. In *Honeywell*, the Federal Circuit found written description support because “the original application also explained that ‘[i]n the case of the local display 37 using separate cathode ray tubes 51–53 *or other display transducers*,’” and also “stated that ‘[w]hile specific configurations of the local display . . . 37 have been described, it is understood that the present invention can be applied to a wide variety of display and vision aid devices.” *Honeywell*, 609 F.3d at 1301 (alterations in original). As we discuss above, however, the 2012 application does not disclose implementing its invention with first and second lenses other than in a positive-negative configuration. And as we also discuss above, the 2012 application’s boilerplate last paragraph does not suggest changing the lens system’s structure or reasonably convey possession of such as change.

We also find unavailing Patent Owner’s argument that “[t]he 2012 [a]pplication clearly discloses both telephoto lens systems ([Ex. 1005, 2:19–3:4]) and wide view lens systems ([Ex. 1005, 2:16–18, 3:4–13, 4:6–8]) as different embodiments.” PO Resp. 38–39. Similarly, we find unavailing Patent Owner’s arguments that “[t]he 2012 [a]pplication discloses that an embodiment of the lens system is to provide a wide angle view,” and “the 2012 [a]pplication clearly discloses telephoto and wide angle embodiments.” *Id.* at 44, 52. Simply put, there is no separate wide view embodiment, as Patent Owner argues. Rather, whenever the 2012 application refers to a wide field of view, it is in the context of a disclosed embodiment in which the first lens has *positive* power and the second lens has *negative* power. *See* Ex. 1005, 2:16–18, 3:4–6, 3:11–13, 4:6–8. For example, for the first disclosed embodiment, in which the first lens has *positive* power and the second lens has *negative* power, the 2012 application discloses that “when

the aperture stop is disposed near the third lens element, a wide field of view can be favorably achieved.” *Id.* at 3:4–6.

In addition, we find inapposite Patent Owner’s argument that it “was well-known that a negative-positive first and second lens element doublet provides a wide-angle lens effect.” PO Resp. 32 (citing Ex. 1003 ¶¶ 56, 58). This argument is untethered to the 2012 application or the challenged claims. As we find above, the 2012 application does not disclose a separate wide view embodiment. Patent Owner’s reliance on *Strech, Inc. v. Research & Diagnostic Sys., Inc.*, 665 F.3d 1269, 1285 (Fed. Cir. 2012) is misplaced for the same reason. PO Resp. 27.

We also find unavailing Patent Owner’s argument that given the well-known nature of first and second lens doublet configurations, one of ordinary skill in the art “would have known and understood the ’948 [p]atent claims to include a positive-negative first and second lens element doublet to achieve a telephoto effect, and to include a negative-positive first and second lens element doublet to achieve a wide field of view.” *Id.* at 32. This argument is incorrectly premised on the 2012 application disclosing a separate wide view embodiment, which it does not. Moreover, Patent Owner provides no expert testimony or other support for this argument, which we find unavailing. *Id.*; *In re Geisler*, 116 F.3d 1465, 1471 (Fed. Cir. 1997) (explaining that attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value).

We also find unavailing Patent Owner’s argument that “[t]he 2012 [a]pplication discloses a preferred manner to achieve either a wide field of view or a telephoto effect by moving the aperture stop, but there is nothing in the 2012 [a]pplication that would have led a skilled artisan to believe that

the varying fields of view can only be achieved by the placement of the aperture stop.” PO Resp. 32. This argument also is incorrectly premised on the 2012 application disclosing a separate wide lens embodiment, which it does not. Moreover, this argument is akin to arguing that it would have been obvious instead to employ a negative-positive first and second lens element doublet to achieve a wide field of view—such an argument is improper. *See PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (quoting *Lockwood*, 107 F.3d at 1572) (“The question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.”).

We also find unavailing Patent Owner’s argument that “the Examiner considered the third and fifth lens elements and their specific features to be the patentable distinctions between the claimed invention and the cited prior art,” and that “[t]he specific features of the first and second lens elements, in contrast, were not material to the patentability of the claimed system.” PO Resp. 33 (citing Ex. 1002, 211). This argument is inapposite to the question of whether the 2012 application provides written description support for the challenged claims of the ’948 patent. Regardless of where novel or patentable features of the ’948 patent may lie, the claims include the first and second lens elements as limitations and these limitations must be fully supported by the 2012 application in order for the claim to benefit from the priority date of the 2012 application.

We also find unavailing Patent Owner’s argument that “there is no requirement that every aspect of every structure in a claimed device needs to be recited, and it is only where a critical feature is omitted that an issue may arise,” as the argument applies here. *Id.* at 33–34 (citations omitted). As we discuss above, in light of disclosures in the 2012 application, we find that the inventor of the 2012 application considered having positive refractive power for the first lens element and negative refractive power for the second lens element to be an essential element of his invention. Thus, the 2012 application “serves to limit the permissible breadth of his later-drafted claims.” *See Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998); *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1582 n.7 (Fed. Cir. 1996) (pointing out that the applicant “was free to draft claim[s] broadly (within the limits imposed by the prior art) to exclude the lockout’s exact location as a limitation of the claimed invention” only because he “did not consider the precise location of the lockout to be an element of his invention”).

We also find unavailing Patent Owner’s argument that Dr. Milster “fails to apply all of the knowledge of [one of ordinary skill in the art] in optimizing or modifying a known lens design.” PO Resp. 36. Similarly, we find unavailing Patent Owner’s numerous arguments directed to what could have been substituted or interchanged with the lens systems of the 2012 application. *See id.* at 36–42. These arguments are incorrectly directed to what would have been obvious in light of the 2012 application’s disclosures, rather than addressing what the 2012 application reasonably conveys that the inventor had possession of to one of ordinary skill in the art. *See, e.g., PowerOasis*, 522 F.3d at 1306; *Indivior UK Ltd. v. Dr. Reddy’s Labs. S.A.*,

18 F.4th 1323, 1329 (Fed. Cir. 2021) (“A written description sufficient to satisfy the requirement of the law requires a statement of an invention, not an invitation to go on a hunting expedition to patch together after the fact a synthetic definition of an invention.”). We also note that we do not rely on Dr. Milster’s testimony that is not tethered to the 2012 application’s disclosures for evaluating the written description support arguments.

Lastly, the cases that the parties discuss that relate to written description support in the context of genus and species limitations are not applicable here for that purpose. These cases include *Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed. Cir. 1998); *Bilstad v. Wakalopulos*, 386 F.3d 1116 (Fed. Cir. 2004); *Research Corp. Tech. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010); and *Arthrex, Inc. v. Smith & Nephew, Inc.*, 35 F.4th 1328 (Fed. Cir. 2022). Simply put, the first and second lens elements of the challenged claims do not involve genus and species issues. “Any given lens element can have either positive or negative refractive power.” Ex. 1003 ¶ 49. “[A] lens element of positive power creates the opposite effect from one having negative power.” *Id.* Thus, for two lenses (i.e., the first and second lens elements), there are four possible independent configurations where the polarity of each lens is independent of each other. Regardless, *Gentry Gallery* applies here, and we find that the challenged “claims may be no broader than the supporting disclosure, and therefore[, the 2012 application’s] narrow disclosure will limit claim breadth.” *Gentry Gallery*, 134 F.3d at 1480; *see also Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed. Cir. 1997) (stating that the case law does “not compel the conclusion that a description of a species always constitutes a description of a genus of which it is a part”).

In sum, we determine that the 2012 application does not provide written description support for an imaging lens system with a negative refractive power first lens and a positive refractive power second lens. And the agreed scope of the challenged claims includes such a configuration, and thus, the written description of the 2012 application does not support the full breadth of the challenged claims. We therefore determine that the challenged claims of the '948 patent do not benefit from the priority date of the 2012 application. Therefore, we determine that Chen-069 is prior art to the challenged claims of the '948 patent.

C. Challenged Claim 1

Petitioner argues that Chen-069 discloses claim 1's preamble and the first, second, third, fourth, and fifth lenses as recited in claim 1 by disclosing the following:

FIG. 1 shows an imaging lens system in accordance with a first embodiment of the present invention, and FIG. 2 shows the aberration curves of the first embodiment of the present invention. The imaging lens system of the first embodiment of the present invention mainly comprises five lens elements including, in order from the object side to the image side: a plastic first lens element 100 with positive refractive power having a convex object-side surface 101 and a concave image-side surface 102, the object-side and image side surfaces 101 and 102 thereof being aspheric; a plastic second lens element 110 with negative refractive power having a convex object-side surface 111 and a concave image side surface 112, the object-side and image-side surfaces 111 and 112 thereof being aspheric; a plastic third lens element 120 with negative refractive power having a convex object side surface 121 and a concave image-side surface 122, the object-side and image-side surfaces 121 and 122 thereof being aspheric; a plastic fourth lens element 130 with positive refractive power having a concave object-side surface 131 and a convex image-side surface 132, the object-side and image-side surfaces 131 and 132 thereof being aspheric; and a

plastic fifth lens element 140 with negative refractive power having a convex object-side surface 141 and a concave image side surface 142, the object-side and image-side surfaces 141 and 142 thereof being aspheric, and each of which being provided with at least one inflection point; wherein an aperture stop 150 is disposed between an imaged object and the first lens element 100; wherein the imaging lens system further comprises an IR filter 160 disposed between the image side surface 142 of the fifth lens element 140 and the image plane 170; and wherein the IR filter 160 has no influence on the focal length of the imaging lens system.

Pet. 44–47 (citing Ex. 1012 ¶ 53; Figs. 1, 7; Ex. 1003 ¶¶ 86–91).

In addition, Petitioner argues that Chen-069’s Figure 1 discloses a five-element imaging lens system in which a gap exists between every two adjacent lens elements along an optical axis of the imaging lens system. *Id.* at 47 (Ex. 1012, Fig. 1; Ex. 1003 ¶ 92). In other words, Chen-069 discloses “wherein there are a total of five lens elements in the imaging lens system, and a gap exists between every two adjacent lens elements along an optical axis of the imaging lens system,” according to Petitioner. *Id.*

After reviewing Petitioner’s arguments and evidence, which are not addressed by Patent Owner (*see generally* PO Resp.), we determine that Petitioner demonstrates by a preponderance of the evidence that Chen-069 anticipates claim 1.

D. Remaining Challenged Claims

Petitioner argues that Chen-069 discloses the limitations recited in claims 2–4, 6–16, 18–24, 28, and 29. Pet. 48–65. Patent Owner does not address Petitioner’s arguments directed to these claims. *See generally* PO Resp. 32–34. Based on the evidence and arguments of record, we find that

Petitioner demonstrates by a preponderance of the evidence that Chen-069 anticipates claims 2–4, 6–16, 18–24, 28, and 29.

VI. JURISDICTION TO ADDRESS § 112 ISSUES

Patent Owner argues that “the Board will exceed its jurisdictional authority if it ultimately finds that the challenged claims lack written description support in the exact same specification as the challenged patent.” PO Resp. 60. We disagree. Rather, the Federal Circuit has found that the Board may resolve issues relating to written description support when determining whether challenged claims are entitled to an alleged priority date. *Arthrex*, 35 F.4th at 1344 (“There is no merit to Arthrex’s argument that the Board lacked statutory authority to decide whether the ’707 application meets the written description requirement.”). Moreover, the Federal Circuit has affirmed a finding of the Board that later-drafted claims lacked written description support in the context of a priority dispute despite having a specification identical to an ancestor application’s specification. *Indivior*, 18 F.4th at 1325, 1328.

In addition, Patent Owner argues that “the Patent Office already affirmatively found that” the specification supports the challenged claims. PO Resp. 53–54. We disagree. Rather, the Examiner stated that certain “references do not qualify as prior art based upon applicant’s perfection of their foreign priority.” Ex. 1002, 212. The Examiner also stated the following:

Applicant is claiming priority to Taiwan application number 098123694 filed July 14, 2009. Applicant has provided a certified translation of this foreign priority in parent application 12/654,912 and has otherwise perfected this foreign priority. The foreign priority fully supports all of the claims of the present

application and as such applicant is entitled to a priority date of July 14, 2009 in terms of applying prior art.

Id. at 210–11 (emphasis added). We view these statements from the Examiner as recognizing that the applicant perfected its foreign priority claim, rather than suggesting that the Examiner performed a detailed analysis as to whether the full scope of each of the challenged claims had written description support. *Id.* at 210–12.

Lastly, we disagree with Patent Owner that *Patlex Corp. v. Quigg*, 680 F.Supp.33 (D.D.C. 1988) applies to this *inter partes* review proceeding. PO Resp. 54–56; PO Sur-reply 17. The *Patlex* decision was rendered by a district court more than twenty years before the AIA statutory framework was enacted. Accordingly, we find that there is no principled basis to conclude that *Patlex* applies here.

VII. CONCLUSION³

Based on the full record, we determine that Petitioner shows by a preponderance of the evidence that claims 1–4, 6–16, 18–24, 28, and 29 are anticipated by Chen-069.

³ 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).

Claim(s)	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 6–16, 18–24, 28, 29	102	Chen-069	1–4, 6–16, 18–24, 28, 29	
Overall Outcome			1–4, 6–16, 18–24, 28, 29	

VIII. ORDER

In consideration of the foregoing, it is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), Petitioner has shown by a preponderance of the evidence that claims 1–4, 6–16, 18–24, 28, and 29 of the '948 patent are unpatentable; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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FOR PETITIONER:

Andrew M. Mason
Roy Chamcharas
Michael J. Loy
Frank Morton-Park
Todd M. Siegel
Sara Slabisak
KLARQUIST SPARKMAN, LLP
andrew.mason@klarquist.com
roy.chamcharas@klarquist.com
michael.loy@klarquist.com
frank.morton-park@klarquist.com
todd.siegel@klarquist.com
sara.slabisak@klarquist.com

FOR PATENT OWNER:

Patrick A. Doody
Christopher Kao (*pro hac vice*)
Brock S. Weber (*pro hac vice*)
PILLSBURY WINTHROP SHAW PITTMAN LLP
patrick.doody@pillsburylaw.com
christopher.kao@pillsburylaw.com
brock.weber@pillsburylaw.com