

No. \_\_\_\_\_

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**In The  
Supreme Court of the United States**

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COLLABO INNOVATIONS, INC.,  
*Petitioner,*

v.

SONY CORPORATION,  
*Respondent.*

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**On Petition for Writ of Certiorari  
to the United States Court of Appeals  
for the Federal Circuit**

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**PETITION FOR WRIT OF CERTIORARI**

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## QUESTIONS PRESENTED

When U.S. Patent No. 5,952,714 issued in September 1999, the Patent Act provided only two avenues for challenging the validity of the patent's claims: *ex parte* reexamination and district court litigation. Shortly thereafter, Congress added a third method, *inter partes* reexamination, but deliberately chose to exclude older patents from the new proceeding. More than 10 years later, Congress replaced *inter partes* reexamination with a fundamentally different proceeding, *inter partes* review, and made it apply retroactively to all prior patents. The questions presented are as follows:

1. Does the retroactive application of *inter partes* review to a patent that issued before the passage of the Leahy–Smith America Invents Act, Pub. L. No. 11-29, 125 Stat. 284 (2011), violate the Takings Clause of the Fifth Amendment?

2. Does the retroactive application of *inter partes* review to a patent that issued before the passage of the Leahy–Smith America Invents Act, Pub. L. No. 11-29, 125 Stat. 284 (2011), violate the Due Process Clause of the Fifth Amendment?



## PARTIES TO THE PROCEEDINGS

The following list identifies all parties to the proceeding in the court whose judgment is sought to be reviewed: Collabo Innovations, Inc., Sony Corporation, and Andrei Iancu, Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.



## RULE 29.6 STATEMENT

Collabo Innovations, Inc. provides the following corporate disclosure statement: Collabo Innovations, Inc. is a wholly owned subsidiary of Wi-LAN Technologies Inc. Wi-LAN Technologies Inc. is a wholly owned subsidiary of Wi-LAN Inc. Wi-LAN Inc. is a wholly owned subsidiary of Quarterhill Inc., a publicly traded company.

The following list identifies all proceedings in state and federal trial and appellate courts, including proceedings in this Court, that are directly related to the case in this Court:

- *Collabo Innovations, Inc. v. Sony Corporation, et al.*, C.A. No. 15-1094-RGA, U.S. District Court for the District of Delaware. Case stayed and administratively closed on November 9, 2017.



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## PETITION FOR WRIT OF CERTIORARI

Petitioner Collabo Innovations, Inc. respectfully submits this petition for writ of certiorari to review the judgment of the U.S. Court of Appeals for the Federal Circuit.



## OPINIONS AND ORDERS BELOW

The panel opinion disposing of the case (App., *infra* 3a–17a) is unreported and available at 778 F. App’x 954 (Fed. Cir. Aug. 5, 2019). The opinion and order of the Patent Trial and Appeal Board (App., *infra* 18a–96a) is unreported and available at 2017 WL 4418283 (PTAB Oct. 3, 2017).



## STATEMENT OF JURISDICTION

The court of appeals entered judgment on August 5, 2019, making the petition due on or before November 4, 2019. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).



## CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

The Fifth Amendment of the U.S. Constitution provides:

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

Section 2 of Article II of the U.S. Constitution provides in relevant part:

[The President] ... shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law: but the Congress may by Law vest the Appointment of such inferior Officers, as they think

proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

35 U.S.C. § 6 states in relevant part:

(a) ... The Director, the Deputy Director, the Commissioner for Patents, the Commissioner for Trademarks, and the administrative patent judges shall constitute the Patent Trial and Appeal Board. The administrative patent judges shall be persons of competent legal knowledge and scientific ability who are appointed by the Secretary, in consultation with the Director.

....

(c) ... Each appeal, derivation proceeding, post-grant review, and inter partes review shall be heard by at least 3 members of the Patent Trial and Appeal Board, who shall be designated by the Director.

Under 35 U.S.C. § 141(c), “[a] party to an inter partes review or a post-grant review who is dissatisfied with the final written decision of the Patent Trial and Appeal Board under section 318(a) or 328(a) (as the case may be) may appeal the Board’s decision only to the United States Court of Appeals for the Federal Circuit.”

Under 35 U.S.C. § 144, “[t]he United States Court

of Appeals for the Federal Circuit shall review the decision from which an appeal is taken on the record before the Patent and Trademark Office. Upon its determination the court shall issue to the Director its mandate and opinion, which shall be entered of record in the Patent and Trademark Office and shall govern the further proceedings in the case.”

35 U.S.C. § 261 states in relevant part:

Subject to the provisions of this title, patents shall have the attributes of personal property.

35 U.S.C. § 282(a) states in relevant part: “A patent shall be presumed valid. Each claim of a patent (whether independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.”

35 U.S.C. §§ 301–319 are attached in the Appendix, as well as the prior versions §§ 311–318 from the American Inventors Protection Act of 1999, Pub. L. 106–113, 113 Stat. 1501A–567 to 1501A–572, and the Patent and Trademark Office Authorization Act of 2002, Pub. L. 107–273, 116 Stat. 1900–1902 (App., *infra* 97a–136a).



## STATEMENT OF THE CASE

U.S. Patent No. 5,952,714 (the “714 patent”) covers an improved design for the packaging of an image

sensor.<sup>1</sup> The patent issued on September 14, 1999. Thus, the '714 patent issued subject to the express provisions of the Patent Act as it existed on that date. *See Oil States Energy Servs., LLC v. Greene's Energy Grp.*, 138 S. Ct. 1365, 1375 (2018) (“[Section 261 of the Patent Act] qualifies any property rights that a patent owner has in an issued patent, subjecting them to the express provisions of the Patent Act.”). In September 1999, the Patent Act authorized only one administrative procedure by which the U.S. Patent and Trademark Office (“PTO”) could reconsider and cancel patent claims: *ex parte* reexamination. The '714 patent was not issued subject to any other reexamination procedure, including either *inter partes* reexamination or its successor, *inter partes* review.

*Ex parte* reexamination was established by Congress in 1980 and still exists today. *See* Act to Amend the Patent and Trademark Laws, Pub. L. 96–517, 94 Stat. 3015–3017, codified at 35 U.S.C. §§ 301–307. Under 35 U.S.C. § 301, any person may call to the PTO’s attention prior art that may have a bearing on the patentability of any claim. On the basis of that prior art, § 302 provides that any person may request that the PTO reexamine a claim of the patent. If the Director determines that there is “a substantial new question of patentability affecting any claim of the patent,” the Director must order reexamination of the patent. §§ 303(a), 304. Upon reexamination, the PTO may confirm any patentable claim or cancel any unpatentable claim, and claims may be amended or

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<sup>1</sup> Image sensors are commonly used as cameras in mobile devices.



added, as set forth in § 307.

Congress decided that *ex parte* reexamination should apply retroactively to any unexpired patents issued before as well as after July 1, 1981. Pub. L. 96–517, § 8(b), 94 Stat. 3015, 3027 (“Section 1 of this Act will take effect on the first day of the seventh month beginning after its enactment and will apply to patents in force as of that date or issued thereafter.”). Congress arguably had a rational basis for retroactively applying *ex parte* reexamination to patents issued before July 1981. Prior to *ex parte* reexamination, issues fundamental to PTO reexamination, such as the raising of new questions of patentability and the cancellation of claims of issued patents, could be resolved only by action of an Article III court — there was no way the PTO or private parties could have forced a patent back into the examination phase against the will of the patent owner (except through an interference). *See Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 601 (Fed. Cir. 1985), *modified on other grounds on reh’g*, 771 F.2d 480 (Fed. Cir. 1985).

As explained by the Federal Circuit in *Patlex*, there was an important public purpose behind Congress’ enactment of *ex parte* reexamination:

The statute was part of a larger effort to revive United States industry’s competitive vitality by restoring confidence in the validity of patents issued by the PTO. In 1979 President Carter in his Industrial Innovation Initiative Message to Congress announced his intention to seek reexamination legislation, stating

that “Patents can provide a vital incentive for innovation, but the patent process has become expensive, time-consuming, and unreliable.” Senator Birch Bayh echoed this concern when he explained “I introduced this legislation because of my conviction that a strong dependable patent system is absolutely essential to our continued ability to innovate to meet the challenges of the future.” Congressman Kastenmeier, who introduced the legislation in the House, described the bill as “an effort to reverse the current decline in U.S. productivity by strengthening the patent and copyright systems to improve investor confidence in new technology.”

*Id.* at 601–02 (citations omitted). There were three principal benefits of *ex parte* reexamination: (1) it could settle validity disputes more quickly and less expensively than the often protracted litigation involved in patent cases; (2) it would allow courts to refer patent validity questions to the expertise of the PTO; and (3) it would reinforce investor confidence in patent rights by affording the PTO a broader opportunity to review “doubtful patents.” *See id.* at 602.

Despite these benefits, Congress desired to increase the popularity of *ex parte* reexamination and further reduce expensive patent litigation in U.S. district courts by providing third parties with additional participation in the reexamination process. H.R. Rep. 106–464, at 133 (1999). To achieve this goal, Congress added a second reexamination procedure in

1999: *inter partes* reexamination. See American Inventors Protection Act (“AIPA”), Pub. L. 106–113, §§ 4601–4608, 113 Stat. 1501A–567 to 1501A–572, codified at 35 U.S.C. §§ 311–318 (2006 ed.) (superseded). *Inter partes* reexamination was procedurally similar to *ex parte* reexamination, except that it granted “third parties greater opportunities to participate in the [PTO]’s reexamination proceedings,” and, following amendments in 2002, also allowed third parties to participate in any appeal of the PTO’s final reexamination decision. See *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2137 (2016).

Unlike *ex parte* reexamination, Congress deliberately chose *not* to make *inter partes* reexamination retroactive.<sup>2</sup> *Inter partes* reexamination applies to “any patent that issues from an original application filed in the United States on or after” November 29, 1999, the enactment date of the AIPA. AIPA, Pub. L. 106–113, 113 Stat. 1501A–572, § 4608(b) (“Subject to subsection (b), this subtitle and the amendments made by this subtitle ... shall apply to any patent that issues from an original application filed in the United States on or after that date.”). And when Congress

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<sup>2</sup> Nothing in the legislative history of the AIPA explains why *inter partes* reexamination applies prospectively. See, e.g., H.R. Rep. 106–464, at 137 (1999). But the original bill, as introduced in the House of Representatives, had no such limitation. See H.R. 2654 § 507 (“This title and the amendments made by this title ... shall apply to all reexamination requests filed on or after such date.”). Given the change in the final legislation, it is evident that Congress’ choice to make *inter partes* reexamination prospective was deliberate.

amended the *inter partes* reexamination statute in 2002, it chose again *not* to make *inter partes* reexamination retroactive.<sup>3</sup> See Intellectual Property and High Technology Technical Amendments Act of 2002, Pub. L. 107–273, 116 Stat. 1900–1902. *Inter partes* reexamination was always prospective in nature: it applied to patents filed after the enactment of the AIPA. Patents that issued from applications filed prior to November 29, 1999, were subject to only *ex parte* reexamination. Thus, although the ’714 patent has always been subject to *ex parte* reexamination, it was *never* subject to *inter partes* reexamination.

In 2011, Congress passed the Leahy–Smith America Invents Act (“AIA”), which amended the *inter partes* reexamination statute by replacing *inter partes* reexamination with *inter partes* review. See AIA, Pub. L. 112–29, 125 Stat. 299–305, codified at 35 U.S.C. §§ 311–319. The AIA began as a patent-reform “project” that “was largely occasioned by the proliferation of patent infringement lawsuits brought by ‘non-practicing entities’ or ‘trolls’ (that is, individuals or entities that do not commercialize their patented inventions).” H.R. Rep. 112–352, at 57 (2011). During the hearings on the bill, Representative Lamar Smith, one of the

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<sup>3</sup> Again, it is evident that Congress’ choice was deliberate, as the amendments modified the effective date of other portions of the AIPA to make them apply retroactively. See Intellectual Property and High Technology Technical Amendments Act of 2002, Pub. L. 107–273, 116 Stat. 1902, § 13202(d) (“The amendments made by section 4605(b), (c), and (e) of the Intellectual Property and Communications Omnibus Reform Act, as enacted by section 1000(a)(9) of Public Law 106–113, shall apply to any reexamination filed in the United States Patent and Trademark Office on or after the date of enactment of Public Law 106–113.”).

Act’s lead sponsors, made clear that the AIA was designed to address what some viewed as “predatory behavior” of so-called “patent trolls”:

I want to make it clear that my interpretation of this amendment and its intent is to highlight the problem posed by entities that pose as financial or technological businesses but whose sole purpose is not to create but to sue. I am talking about patent trolls — those entities that vacuum up patents by the hundreds or thousands and whose only innovations occur in the courtroom. This sense of Congress shows how these patent trolls can hurt small businesses and independent inventors before they even have a chance to get off the ground. This bill is designed to help all inventors and ensure that small businesses will continue to be a fountain for job creation and innovation.

157 Cong. Rec. 9938–39 (daily ed. June 23, 2011); *see also* 157 Cong. Rec. 13192 (daily ed. Sept. 8, 2011) (statement of Sen. Grassley) (noting that the AIA “will curb litigation abuses”); 157 Cong. Rec. 2707 (daily ed. Feb. 28, 2011) (statement of Sen. Leahy) (noting that low-quality patents “enable patent trolls who extort

unreasonable licensing fees from legitimate businesses, and constitute a drag on innovation”).<sup>4</sup>

In opposing an amendment that would have exempted small companies from all post-grant proceedings and reexaminations, Representative Smith further clarified that the AIA’s post-grant review proceedings, such as *inter partes* review, were intended to deter lawsuits from the “patent trolls”:

This amendment appears to focus on small businesses, but in reality the amendment attempts to provide the trial lawyer lobby and patent trolls with an exemption from PTO reexamination, allowing them to continue suing job creators using frivolous or questionable patents. This amendment has nothing to do with small businesses and everything to do with providing an exemption for some

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<sup>4</sup> The legislative history of the AIA does not reveal a consistent definition of “patent trolls” or a consistent explanation for why some find the behavior of so-called “patent trolls” offensive (beyond the fact that they invest in patents and lawfully exercise their patent rights). Patent investors, like Wi-LAN Inc. (Colabo’s parent) encourage innovation by providing individual inventors and small businesses, who would not otherwise be able to afford expensive patent litigation against large corporate infringers, or entities who would otherwise be reluctant to engage in litigation for policy or strategic reasons, a way to monetize their intellectual property. Thus, contrary to the concerns of some congressmembers, patent investors help small businesses. Further, it is not fair to accuse only “patent trolls” of litigation abuse. For example, the party accused of litigation abuse in *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 551–52 (2014), is a manufacturer of exercise equipment.

of the worst offenders of our patent system.

....

This would not help small businesses but will allow patent troll entities, foreign companies, and foreign governments to manipulate our patent system. ... This amendment is a recipe for allowing patent trolls and foreign companies and their governments to bypass normal post-grant challenges and enables weak or questionable patents to bypass further scrutiny. There is no legitimate public policy objective in exempting large numbers of those who manipulate our patent system from the rules of the road.

157 Cong. Rec. 9949 (daily ed. June 23, 2011); *see also* 157 Cong. Rec. 9778 (daily ed. June 22, 2011) (statement of Rep. Goodlatte) (“H.R. 1249 also includes provisions to ensure that patent litigation benefits not those opportunists who seek to abuse the litigation process.”). Indeed, *inter partes* review challenges have become “a particularly attractive tool to use against nonpracticing entities (NPEs) or so-called patent trolls.” Eric W. Schweibenz et al., *Automatic Stay of Litigation Pending Inter Partes Review? A Simple Proposal for Solving the Patent Troll Riddle*, *Landslide*, Sept./Oct. 2014, at 40.

Like *inter partes* reexamination, any third party can ask the agency to initiate *inter partes* review. *Cuozzo*, 136 S. Ct. at 2137. But the AIA changed the

standard for initiating *inter partes* review. *Id.* Instead of requiring a “substantial new question of patentability,” it now requires “a reasonable likelihood that” the challenger “would prevail.” *Id.* The AIA also “provides a challenger with broader participation rights.” *Id.* Unlike other forms of reexamination, *inter partes* review is “adjudicatory in nature.” *Return Mail, Inc. v. U.S. Postal Serv.*, 139 S. Ct. 1853, 1860 (2019). “Review is conducted by a three-member panel of the Patent Trial and Appeal Board, and the patent owner and challenger may seek discovery, file affidavits and other written memoranda, and request an oral hearing.” *Id.* (citations omitted). The Board consists of the Director, the Deputy Director, the Commissioner for Patents, the Commissioner for Trademarks, and administrative patent judges, who are appointed by the Secretary in consultation with the Director. 35 U.S.C. § 6(a).

A patent owner’s right to amend is significantly curtailed in *inter partes* review. When a patent examiner rejects a claim during reexamination, the applicant has a right to amend and resubmit the claim. *Cuozzo*, 136 S. Ct. at 2145. This process may be repeated. *Id.* “This system — broad construction with a chance to amend — both protects the public from overly broad claims and gives the applicant a fair chance to draft a precise claim that will qualify for patent protection.” *Id.* But in *inter partes* review, “there is no absolute right to amend any challenged patent claims.” *Id.* The patent owner has the right to file a single motion to amend. 35 U.S.C. § 316(d). However,



motions to amend are rarely granted by the Board. According to the PTO’s latest statistics, the Board denies motions to amend in *90%* of all *inter partes* reviews.<sup>5</sup>

Critically, unlike *inter partes* reexamination, Congress chose to make *inter partes* review apply retroactively to all patents. AIA, Pub. L. 112–29, 125 Stat. 304, § 6(b) (“The amendments made by subsection (a) shall take effect upon the expiration of the 1-year period beginning on the date of the enactment of this Act and shall apply to any patent issued before, on, or after that effective date.”). But Congress’ decision to make *inter partes* review retroactive was not without dissent. In particular, Representative John Conyers, Jr. objected to the retroactive application of the law, stating:

Most of the proposed reforms in both the House and Senate patent reform bills such as the other post-grant provisions are applicable going forward, not retroactively. If we are seeking to craft a bipartisan bill with consensus, stripping the legal rights of private parties involved in pending litigation is a non-starter.

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<sup>5</sup> U.S. Patent and Trademark Office, *Patent Trial and Appeal Board Motion to Amend Study, Installment 5: Update Through September 30, 2018*, at 7 (last updated Mar. 2019), available at <https://tinyurl.com/y2h7kq2b> (last visited Oct. 29, 2019).

To the extent legislation is needed, I support applying the new rules going forward because these rules would be implemented and cases would be adjudicated in conjunction with the new broader reforms of the entire patent system the bill proposes, creating balance and fairness for all parties.

H.R. Rep. 112–98, at 162–63 (2011). As a result of Congress’ decision to make *inter partes* review retroactive, the ’714 patent became subject to *inter partes* review on September 16, 2012.

In November 2015, Collabo filed a patent infringement lawsuit against Sony in the District of Delaware. In response, Sony filed petitions for *inter partes* review of the patents in suit, including ’714 patent. On October 13, 2016, the Board instituted *inter partes* review of the ’714 patent, and the parties subsequently agreed to stay the district court litigation pending completion of the *inter partes* review proceedings. Following trial, the Board found that Sony demonstrated by a preponderance of the evidence that claims 1–13 and 15–16 of the ’714 patent were unpatentable. (App., *infra* 95a–96a).

Collabo appealed the Board’s determination to the Federal Circuit, arguing that the Board erred in construing the claims at issue, that substantial evidence did not support the Board’s findings, that the Board failed to provide an adequate explanation for some of its findings, and that the Board’s institution of *inter partes* review against the ’714 patent was an uncon-

stitutional retroactive application of the law in violation of the Takings and Due Process Clauses of the Fifth Amendment. The government subsequently intervened in the appeal to defend the constitutionality of *inter partes* review and its application in this case. Following oral argument, the Federal Circuit issued its decision in *Celgene Corp. v. Peter*, 931 F.3d 1342 (Fed. Cir. 2019), which held that the retroactive application of *inter partes* review did not constitute an unconstitutional taking under the Fifth Amendment. Shortly thereafter, the Federal Circuit affirmed the Board’s decision, holding that the retroactive application of *inter partes* review is not unconstitutional and does not effectuate a taking, citing *Celgene*. (App., *infra* 15a–16a).



## REASONS FOR GRANTING THE PETITION

This case presents important constitutional questions that the Court specifically declined to address in *Oil States*: whether the retroactive application of *inter partes* review to patents that issued prior to the AIA violates the Takings and Due Process Clauses of the Fifth Amendment. *See* 138 S. Ct. at 1379 (“[W]e address only the precise constitutional challenges that *Oil States* raised here. *Oil States* does not challenge the retroactive application of *inter partes* review, even though that procedure was not in place when its patent issued. Nor has *Oil States* raised a due process challenge. Finally, our decision should not be misconstrued as suggesting that patents are not property for the purposes of the Due Process Clause or the Takings Clause.”).

While these issues were not raised by the petitioner in *Oil States*, numerous *amici curiae* believed they were significant and warranted the Court’s attention.<sup>6</sup> Indeed, “the presumption against retroactive legislation is deeply rooted in [the Court’s] jurisprudence, and embodies a legal doctrine centuries older than our Republic.” *Langraf v. USI Film Prods.*, 511 U.S. 244, 265 (1994). This presumption against statutory retroactivity applies even with respect to “explicitly retroactive statutes.” *Id.* at 279. Fairness dictates that people “should have an opportunity to know what the law is and to conform their conduct accordingly; settled expectations should not be lightly disrupted.” *Id.* at 265. “It is therefore not surprising that the antiretroactivity principle finds expression in several provisions of our Constitution,” including the Takings and Due Process Clauses. *Id.* at 266.

Several scholars, academics, and professionals have questioned — or at least addressed — the constitutionality of the retroactive application of *inter partes* review to patents that issued before the AIA. See, e.g., Saurabh Vishnubhakat, *The Mixed Case for a PTAB Off-Ramp*, 18 Chi.-Kent J. Intell. Prop. 514,

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<sup>6</sup> See, e.g., Br. of Amicus Curiae Intellectual Prop. Law Ass’n of Chi. in Supp. of Neither Party at 6–9, *Oil States*, *supra*, 2017 WL 4004534; Br. of Amici Curiae Biotech. Innovation Org. *et al.* in Supp. of Pet’r at 30–32, *Oil States*, *supra*, 2017 WL 3888208; Br. of Amici Curiae 3M Co. *et al.* in Supp. of Neither Party at 7–8, *Oil States*, *supra*, 2017 WL 3888218; Br. of Amicus Curiae Pharm. Research & Mfrs. of Am. in Supp. of Pet’r at 15–16, *Oil States*, *supra*, 2017 WL 3888202; Br. of Amici Curiae 27 Law Professors in Supp. of Pet’r at 10–11, *Oil States*, *supra*, 2017 WL 3913774.

521 (2019) (“*A fortiori*, the patents issued before the AIPA that were not subject even to *inter partes* reexamination have suffered and continue to suffer an even greater reversal of reliance interests in the current system of *inter partes* review.”); Jason Hoffman, *How Congress Making IPR Retroactive Affects Oil States*, Law360: Expert Analysis (Sept. 12, 2017, 12:21 PM)<sup>7</sup> (“Congress’ decision to make *inter partes* review retroactive, unlike its decision regarding *inter partes* re-examination, could ultimately doom *inter partes* review.”); Gregory Dolin & Irina D. Manta, 73 Wash. & Lee L. Rev. 719, 795 (2016) (“The government is free to modify its procedures for future patent applicants, but owners whose rights vested before the AIA became effective should not be subject to this kind of drastic restriction of their investment-backed expectations.”). *But see* Camilla A. Hrdy & Ben Picozzi, *The AIA Is Not a Taking: A Response to Dolin & Manta*, 72 Wash. & Lee L. Rev. Online 472 (2016).

In addition, the resolution of these constitutional questions has the potential to impact a very large number of cases. The Board has conducted over 9,870 *inter partes* review proceedings since the enactment of the AIA,<sup>8</sup> and there are over 1,100 active *inter partes* reviews. Thousands of these cases likely involve patents that issued before the AIA. Not surprisingly, in

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<sup>7</sup> <https://www.law360.com/articles/961351/how-congress-making-ipr-retroactive-affects-oil-states> (last visited Oct. 29, 2019).

<sup>8</sup> U.S. Patent and Trademark Office, *Trial Statistics: IPR, PGR, CBM*, at 3 (last updated Sept. 2019), available at <https://tinyurl.com/y5np9c74> (last visited Oct. 29, 2019).

June 2018, 62.5% of patents challenged in *inter partes* review petitions were pre-AIA patents. See Vishnubakat, *supra*, at 519. The share of patents that, like the '714 patent, are so old that they would not have been eligible even for *inter partes* reexamination has remained above 10% until just this past year. *Id.* at 520. Indeed, the same constitutional issues have been raised in many other appeals,<sup>9</sup> and the Federal Circuit has now addressed them several times. See *OSI Pharms., LLC v. Apotex, Inc.*, 939 F.3d 1375, 1385–86 (Fed. Cir. 2019); *Arthrex, Inc. v. Smith & Nephew, Inc.*, 935 F.3d 1319, 1331–32 (Fed. Cir. 2019); *Enzo Life Scis., Inc. v. Becton, Dickinson & Co.*, Nos. 18-1232, -1233, 2019 WL 3851578, at \*7 (Fed.

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<sup>9</sup> See, e.g., *Chestnut Hill Sound Inc. v. Apple Inc.*, No. 18-1163 (Fed. Cir.), ECF No. 25 at 29–30; *Enzo Life Scis., Inc. v. Hologic, Inc.*, No. 18-1232 (Fed. Cir.), ECF No. 31 at 59–61; *Collabo Innovations, Inc. v. Sony Corp.*, No. 18-1368 (Fed. Cir.), ECF No. 19 at 38–43; *Collabo Innovations, Inc. v. Sony Corp.*, No. 19-1152, (Fed. Cir.), ECF No. 33 at 54–61; *Collabo Innovations, Inc. v. Sony Corp.*, No. 19-1154, (Fed. Cir.), ECF No. 33 at 54–60; *ARCH Dev. Corp. v. OSI Pharm., LLC*, No. 18-1485 (Fed. Cir.), ECF No. 44 at 35–48; *Arthrex, Inc. v. Smith & Nephew, Inc.*, No. 18-1584 (Fed. Cir.), ECF No. 20 at 62–65; *Focal IP, LLC v. Cisco Sys., Inc.*, No. 18-1627 (Fed. Cir.), ECF No. 41 at 68–69; *OSI Pharm., LLC v. Apotex Inc.*, No. 18-1925 (Fed. Cir.), ECF No. 25 at 49–50; *Genentech, Inc. v. Hospira, Inc.*, No. 18-1933 (Fed. Cir.), ECF No. 17 at 53–56; *Genentech, Inc. v. Hospira, Inc.*, No. 18-1959 (Fed. Cir.), ECF No. 16 at 41–45; *Evolved Wireless LLC v. ZTE (USA) Inc.*, No. 18-2008 (Fed. Cir.), ECF No. 48 at 63–64; *Agarwal v. TopGolf Int'l, Inc.*, No. 18-2270 (Fed. Cir.), ECF No. 10 at 69–70; *Koninklijke Philips N.V. v. Microsoft Corp.*, No. 19-1178 (Fed. Cir.), ECF No. 32 at 47–48; *Intellectual Ventures II LLC v. FedEx Corp.*, No. 18-2372 (Fed. Cir.), ECF No. 21 at 39–45.

Cir. Aug. 16, 2019); *Collabo*, 778 F. App'x at 960–61; *Celgene*, 931 F.3d at 1357–63. And there is no reason to believe that these issues will disappear any time soon. One of the last patents to issue before the AIA, U.S. Patent No. 8,020,214, does not expire until 2029.<sup>10</sup>

The Court should grant the petition and declare the retroactive application of *inter partes* review unconstitutional under the Takings and Due Process Clauses of the Fifth Amendment.<sup>11</sup>

### **A. The Retroactive Application of *Inter Partes* Review Violates the Takings Clause.**

The Takings Clause states that “private property [shall not] be taken for public use, without just compensation.” U.S. Const. amend. V. The Clause provides a “safeguard against retrospective legislation concerning property rights.” *E. Enters. v. Apfel*, 524 U.S. 498, 532 (1998) (“Retroactivity is generally disfavored in the law,” especially where it “deprive[s] citizens of legitimate expectations and upset[s] settled transactions.”). Where the “government takes private

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<sup>10</sup> Other pre-AIA patents have even later expiration dates.

<sup>11</sup> The Court’s denial of certiorari in *Advanced Audio Devices, LLC v. HTC Corp.*, No. 18-183 (Oct. 9, 2018), does not militate against review here. Advanced Audio did not raise a clear retroactivity challenge to *inter partes* review in its opening brief with the Federal Circuit and thus waived the issue on appeal. Further, Advanced Audio did not raise a challenge under the Due Process Clause. Its petition was limited to the question of whether *inter partes* review of patents filed before the enactment of the AIA violates the Takings Clause. Moreover, there was no decision for the Court to review, as neither the Federal Circuit nor the Board addressed the issue below.

property without paying for it, that government has violated the Fifth Amendment.” *Knick v. Twp. of Scott, Pa.*, 139 S. Ct. 2162, 2170 (2019).

Patents are property for purposes of the Takings Clause. *See Oil States*, 138 S. Ct. at 1379 (“[O]ur decision should not be misconstrued as suggesting that patents are not property for the purposes of the Due Process Clause or the Takings Clause.”); *Horne v. Dep’t of Ag.*, 135 S. Ct. 2419, 2427 (2015) (noting that personal property, including patents, are protected against physical appropriation); *James v. Campbell*, 104 U.S. 356, 358 (1881) (“[A patent] confers upon the patentee an exclusive property in the patented invention which cannot be appropriated or used by the government itself, without just compensation, any more than it can appropriate or use without compensation land which has been patented to a private purchaser ....”).

Section 261 “qualifies any property rights that a patent owner has in an issued patent, subjecting them to the express provisions of the Patent Act.” *Oil States*, 138 S. Ct. at 1375. But provisions added to the Patent Act after a patent becomes the personal property of its owner cannot, consistent with the Takings Clause, narrow or eliminate those property rights. For example, in *McClurg v. Kingsland*, 42 U.S. (1 How.) 202 (1843), the Court held that Congress’ power to “legislate upon the subject of patents is plenary,” but only insofar as such legislation “do[es] not take away the rights of property in existing patents.” *Id.* at 206. A legislative change “can have no effect to impair the right of property then existing in a patentee, or his assignee, according to the well-established principles of



this court.” *Id.* (citing *Society for Propagation of Gospel v. Town of New Haven*, 21 U.S. (8 Wheat.) 464, 493–94 (1823)). The Constitution thus prohibits Congress from retroactively abrogating vested property rights in patents.

All rights and interest in the ’714 patent vested when the patent issued on September 14, 1999, before the AIPA and more than ten years before the AIA. At that time, the rights and interest in the ’714 patent could be taken away only through an *ex parte* reexamination or through the judgment of an Article III court. The Board did not even exist, much less have authority to cancel any claims of the ’714 patent. If the Board’s decisions are not vacated, they will permanently eliminate Collabo’s vested rights and interest in certain claims of the ’714 patent, including the “most essential stick[] in the bundle of rights,” the right to exclude others such as Sony from using the claimed inventions. *See Dolan v. City of Tigard*, 512 U.S. 374, 384 (1994). This is far more intrusive than the “minor but permanent physical occupation” of property found to be a taking in *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 421 (1982), or the insistence on public easements found to be a taking in *Dolan*, 512 U.S. at 393.

If allowed, the Board’s action — a product of the retroactive application of the AIA — will “take away the rights of property in existing patents” and constitute an unconstitutional taking. *See McClurg*, 42 U.S. (1 How.) at 206; *see also James*, 104 U.S. at 358. The Court addressed a similar situation in *Richmond Screw Anchor Co. v. United States*, 275 U.S. 331 (1928), where Congress passed a law that immunized

federal contractors “entirely from liability of every kind for infringement of patents in manufacturing anything for the government.” *Id.* at 343. Even though the statute did not expressly negate a patent, the Court recognized that the effect of the law was “to deprive [the patent owner] of the cause of action against the infringing contractor for injury by his infringement.” *Id.* at 345. The Court therefore refused to construe the law as applying retroactively and “take away from a private citizen his lawful claim for damage to his property by another private person” because it “would seem to raise a serious question as to the constitutionality of the [law] under the Fifth Amendment.” *Id.* at 345–46.

The cancellation of a patent claim is a complete removal of the owner’s personal property, and should be regarded as a complete, “physical” taking under the Takings Clause. But even if it is not, the retroactive application of *inter partes* review to patents like the ’714 patent still constitutes a regulatory taking under the factors of *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104, 124 (1978).

The first *Penn Central* factor looks to Collabo’s continued ability, after the government action, to earn a reasonable return on its investment. *Id.* at 129 n.26. The enactment of the AIA and the resulting invalidation of the ’714 patent claims have had a detrimental economic impact on Collabo’s ability to earn a return on its investment in the ’714 patent. With the creation of *inter partes* review, the value of *all patents* dropped by two-thirds. See Dolin & Manta, *supra*, at 792. Prior to the Board’s decision, Collabo filed several lawsuits in the District of Delaware to defend its exclusive

rights under the '714 patent, including cases against Aptina Imaging Corporation (now part of ON Semiconductor), OmniVision Technologies Inc., and Sony. Significant legal fees and costs have been incurred to prepare and file those legal actions, as well as for preparation, filing, issuance, and maintenance of the patent claims. Collabo successfully negotiated settlements with Aptina and OmniVision. But as a result of the Board's action, Collabo can no longer enforce the challenged claims against Sony and earn a return on its investment.

The second *Penn Central* factor looks to the patent owner's reasonable investment-backed expectations. When the '714 patent issued, there were only two proceedings through which claims of the patent could have been lawfully taken: *ex parte* reexamination and district court litigation. Both of these proceedings include important safeguards absent in *inter partes* review.

Once initiated, third parties do not participate in *ex parte* reexamination. *Ex parte* reexamination is a continuation of the original examination with the PTO. 35 U.S.C. § 305; *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1353 (2018) ("Once instituted, ... *ex parte* reexamination follows essentially the same inquisitorial process between patent owner and examiner as the initial Patent Office examination."). In *ex parte* reexamination, patent owners have an unfettered right to amend their claims, which "protects the public from overly broad claims and gives the applicant a fair chance to draft a precise claim that will qualify for patent protection." See *Cuozzo*, 136 S. Ct. at 2145. The unlimited right to amend claims continues a patent

owner's "*pas de deux* with the PTO" that began in initial examination, to clarify the claim scope over the prior art. Dolin & Manta, *supra*, at 785–86. Additionally, *ex parte* reexamination permits patent owners to seek multiple layers of administrative and judicial review. See 35 U.S.C. §§ 305–306.

In district court litigation, patent claims are given "their 'ordinary meaning ... as understood by a person of skill in the art'" and not their "broadest reasonable construction." *Cuozzo*, 136 S. Ct. at 2142. Further, patents are presumed valid in district court, and invalidity must be proved by clear and convincing evidence. 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011). Plus, only a limited number of persons can seek to invalidate a patent in district court, as there must be a case or controversy with the patent owner. See *Altwater v. Freeman*, 319 U.S. 359, 363 (1943).

In *ex parte* reexamination, "25% of patents emerge completely unscathed, while another 'two-third of the patents exit reexamination with some changes made to the claims,'" and "[o]nly 12% of all patents ... fail to receive the reexamination certificate." See Dolin & Manta, *supra*, at 758 & n.243 (quoting Gregory Dolin, *Dubious Patent Reform*, 56 B.C. L. Rev. 881, 923–24 (2015)). Near the time that the '714 patent issued, statistics showed that the rate of invalidation for lack of novelty or obviousness in litigation was limited to about 33%. See Dolin & Manta, *supra*, at 755 & n.226 (citing John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 209 (1998)). With these odds, the patent owner reasonably concluded that it was worth

trading the disclosure of its inventions to the public for patent protection. See *J.E.M. Ag. Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 142 (2001) (“The disclosure required by the Patent Act is the quid pro quo of the right to exclude.”) (quotations omitted). But the patent owner could not foresee that Congress would subsequently pass a new law over a decade later that would strip the safeguards of *ex parte* reexamination and district court litigation and dramatically increase the likelihood that the ’714 patent would be invalidated.

Of course, “[n]o one has a vested right in any given mode of procedure,” *Denver & R. G. W. R. Co. v. Brotherhood of R. R. Trainmen*, 387 U.S. 556, 563 (1967). But this Court has not “restrict[ed] the presumption against statutory retroactivity to cases involving ‘vested rights’” or “suggest[ed] that concerns about retroactivity have no application to procedural rules.” *Landgraf*, 511 U.S. at 275 n.29. And *inter partes* review is not simply a new mode of procedure for a preexisting proceeding. Nor does it simply change the tribunal adjudicating that proceeding. It is an entirely new proceeding that Congress has unlawfully imposed on patents that issued under an “old regime.” *Id.*

With the adoption of *inter partes* review, Congress rejected the “inquisitorial approach” used in patent reexamination. *SAS*, 138 S. Ct. at 1355. “[R]ather than create (another) agency-led, inquisitorial process for reconsidering patents, Congress opted for a party-directed, adversarial process.” *Id.* As this Court recently recognized, *inter partes* review is “fundamentally different” from *ex parte* reexamination, and the

proceedings accomplish their goals “in meaningfully different ways.” *Return Mail*, 139 S. Ct. at 1865–66.

“[T]he AIA post-issuance review proceedings are adversarial, adjudicatory proceedings between the ‘person’ who petitioned for review and the patent owner: There is briefing, a hearing, discovery, and the presentation of evidence, and the losing party has appeal rights.” *Id.* at 1866. Indeed, Congress intended *inter partes* review to provide a “quick and cost effective alternative[] to litigation” and to “convert *inter partes* reexamination from an examination to an adjudicative proceeding.” H.R. Rep. No. 112–98, at 46, 48 (2011). But unlike district court litigation, patents in *inter partes* review are not accorded a presumption of validity, and the standard of proof is a preponderance of the evidence. 35 U.S.C. § 316(e). Non-expired patents were (until recently) given their broadest reasonable construction in *inter partes* review.<sup>12</sup> And any person, regardless of standing, can file a petition for *inter partes* review. 35 U.S.C. § 311.

Significantly, patent owners have no right to amend in *inter partes* review. Absent certain exceptions, patent owners are limited to “1 motion” to amend and must propose substitute claims. 35 U.S.C. § 316(d). Motions to amend are rarely granted. *See Patent Trial and Appeal Board Motion to Amend Study*, *supra*, at 7. Unlike reexamination, there is also a “1 year” time limit by which the Board must issue its “final determination” in an *inter partes* review. 35

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<sup>12</sup> Because the ’714 patent is expired, the Board did not apply the “broadest reasonable construction” standard. The Board abandoned the “broadest reasonable construction” standard in *inter partes* reviews on November 13, 2018.

U.S.C. § 316(a)(11). While that deadline can be extended by 6 months for good cause, or in the case of joinder, the strict time limits of *inter partes* review deprive patent owners of a full and fair opportunity to defend the validity of their claims and engage in the same meaningful, extended amendment process as reexamination.

*Inter partes* review is also broader in scope than *ex parte* reexamination. Unlike reexamination where the Director can institute reexamination limited to “resolution of *the question*,” *inter partes* review subjects *all* challenged claims to review, regardless of whether a petitioner demonstrates a “reasonable likelihood” that he or she will prevail in the petition. *See SAS*, 138 S. Ct. at 1356 (emphasis in original). This undoubtedly subjects more claims to *inter partes* review than otherwise would be the case in *ex parte* reexamination and, relatedly, requires patent owners to defend more claims than reexamination.

*Inter partes* review proceedings are not judged by PTO employees like examiners in reexaminations (much less by a jury). Instead, they are judged by the Board. The Board comprises political appointees of President Trump and the Secretary of Commerce, including the Director and administrative patent judges. 35 U.S.C. § 6(a); *see also Oil States*, 138 S. Ct. at 1380–81 (Gorsuch, J., dissenting). These are not employees. As the Federal Circuit recently concluded, the AIA makes them principal “Officers of the United States,” who were appointed in violation of the Appointments Clause. *See Arthrex*, 2019 WL 5616010, at \*3–8; *see also Duffy, supra*, at 25.

The Director has independent authority to decide

whether to institute an *inter partes* review — a decision that is not reviewable on appeal. See 35 U.S.C. § 314(a), (d); *Cuozzo*, 136 S. Ct. at 2140–41. Thus, the Director has unfettered discretion to grant or deny institution of *inter partes* review when it advances the President’s policy objectives. For example, the Director could choose to institute *inter partes* reviews only against unfavored groups, like “patent trolls” and non-practicing entities. Conversely, it could deny institution of *inter partes* review against favored groups, like large corporate donors. Or, perhaps, the Director could choose to use his power to extort favors. By contrast, upon receiving a request for *ex parte* reexamination, the Director *must* determine “whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request,” and, if so, *must* “include an order for reexamination of the patent for resolution in question.” 35 U.S.C. §§ 303(a), 304.

In addition, “[t]he Director is allowed to select which of these members, and how many of them, will hear any particular patent challenge.” *Oil States*, 138 S. Ct. at 1380 (Gorsuch, J., dissenting). And if the Board reaches “a result [the Director] does not like, the Director can add more members to the panel — including himself — and order the case reheard.” *Id.* Incredibly, the Director has admittedly used “panel stacking” to secure the “policy judgments” — which is itself a practice of questionable legitimacy and susceptible to abuse by the Executive Branch. *Id.*; see also John M. Golden, *PTO Panel Stacking: Unblessed by the Federal Circuit and Likely Unlawful*, 104 Iowa L. Rev. 2447, 2459–75 (2019).



Most troubling, the rate of invalidation in *inter partes* review exceeds 75% of all claims subject to adjudication. See Dolin & Manta, *supra*, at 756 & n.229 (citing Dolin, *Dubious Patent Reform*, *supra*, at 926). In fact, former Federal Circuit Chief Judge Randall Rader labeled the Board a “death squad[]” for patents. Ryan Davis, *PTAB’s ‘Death Squad’ Label Not Totally Off-Base, Chief Says*, Law360 (Aug. 14, 2014, 5:47 PM).<sup>13</sup> And the Board’s former Chief Judge, James Smith, admitted that the label had some truth to it: “If we weren’t, in part, doing some ‘death squadding,’ we would not be doing what the statute calls on us to do.” *Id.* Obviously, there was no expectation that Congress would unilaterally and impermissibly change the patent bargain after closing the deal by creating a patent “death squad” like the Board. See Vishnubhakat, *supra*, at 521 (“*A fortiori*, the patents issued before the AIPA that were not subject even to *inter partes* reexamination have suffered and continue to suffer an even greater reversal of reliance interests in the current system of *inter partes* review.”).

The third *Penn Central* factor examines the character of the government action. While Congress may have believed that *inter partes* review “substantially advances legitimate [government] interests,” that fact is irrelevant for the purposes of the Takings Clause. See *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005). This factor instead examines the “challenged regulation’s effect on private property.” *Id.* at 543. Here, the Board’s action does not merely restrict a

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<sup>13</sup> <https://www.law360.com/articles/567550/ptab-s-death-squad-label-not-totally-off-base-chief-says> (last visited Oct. 30, 2019).

beneficial use of the '714 patent claims at issue. It takes them for dedication to the public. The Board's action is thus more akin to a physical invasion of property than an adjustment to the benefits and burdens of economic life. It "eviscerates the owner's right to exclude others from entering and using her property — perhaps the most fundamental of all property interests." *Id.* at 539.

Some may argue that the Board's action had no practical effect on Collabo's property rights because Collabo never had a valid property interest in the '714 patent. Not true. The '714 patent issued with a presumption of validity under § 282(a). And there is no reason to believe that all claims of the '714 patent at issue would have been cancelled in *ex parte* reexamination, that no claim would have emerged from *ex parte* reexamination in an amended form, or that a jury would have found the claims invalid by clear and convincing evidence at a trial in district court. Sony should not have been permitted to side-step the safeguards of *ex parte* reexamination and district court litigation through the use of a wholly new proceeding that did not exist at the time the '714 patent issued.

Finally, Collabo was not required to file a claim with the Court of Federal Claims in order to challenge the Board's unconstitutional taking of the '714 patent claims at issue. The Court of Federal Claims does not have jurisdiction to reverse the decision of the Board or find the retroactive application of *inter partes* review unconstitutional. *See E. Enters.*, 524 U.S. at 520. The AIA provides a comprehensive and exclusive remedial scheme for patent owners dissatisfied with a decision of the Board. As "[a] party dissatisfied with

the final written decision of the Patent Trial and Appeal Board,” Collabo had the authority to appeal the decision to the Federal Circuit. 35 U.S.C. § 319; *see also* 35 U.S.C. § 141. The Federal Circuit had jurisdiction to review that decision “on the record before the Patent and Trademark Office” and “issue to the Director its mandate and opinion.” 35 U.S.C. § 144. Because Collabo had no alternative remedy, its takings claim was not “premature” when presented to the Federal Circuit. *See Horne v. Dep’t of Ag.*, 569 U.S. 513, 527–28 (2013).

### **B. The Retroactive Application of *Inter Partes* Review Violates the Due Process Clause.**

The Due Process Clause states that “[n]o person shall ... be deprived of life, liberty, or property, without due process of law.” U.S. Const. amend. V. “[L]egislative Acts adjusting the burdens and benefits of economic life come to the Court with a presumption of constitutionality, and ... the burden is on one complaining of a due process violation to establish that the legislature has acted in an arbitrary and irrational way.” *Usery v. Turner Elkhorn Mining Co.*, 428 U.S. 1, 15 (1976). “It does not follow, however, that what Congress can legislate prospectively it can legislate retrospectively. The retrospective aspects of legislation, as well as the prospective aspects, must meet the test of due process, and the justifications for the latter may not suffice for the former.” *Id.* at 16.

Congress’ decision to make *inter partes* review apply retroactively to all patents is both arbitrary and irrational. Notably, while Congress made *ex parte* reexamination apply retroactively, it made the deliberate decision *not* to make *inter partes* reexamination,

the predecessor of *inter partes* review, retroactive. *See* AIPA, Pub. L. 106–113, 113 Stat. 1501A–572, § 4608(b); Intellectual Property and High Technology Technical Amendments Act of 2002, Pub. L. 107–273, 116 Stat. 1900–1902. Yet when Congress amended the same statutory provisions to create *inter partes* review, it inexplicably reversed course, making *inter partes* review not only retroactively applicable to patents subject to *inter partes* reexamination, but also applicable to patents (like the '714 patent) that Congress previously chose to exclude from *inter partes* reexamination. AIA, Pub. L. 112–29, 125 Stat. 304, § 6(b).

Despite the strong objections of Representative Conyers, who recognized that retroactive application of *inter partes* review would “strip[] the legal rights of private parties involved in pending litigation,” Congress identified no rationale for its decision to make *inter partes* review retroactive, *See* H.R. Rep. 112–98, at 162–63 (2011). There is none. Tellingly, the Federal Circuit concluded in *Celgene* that there are no meaningful substantive differences between *inter partes* review and *ex parte* reexamination. 931 F.3d at 1360–63. While *Collabo* does not agree with that conclusion, if the Federal Circuit is correct, then there was no need for Congress to apply the law retroactively — *ex parte* reexamination has always been available for the claims of the '714 patent and provided a sufficient vehicle for raising Sony's invalidity challenges outside of district court.

Both *inter partes* review and *ex parte* reexamination “serve essentially the same purpose” of correcting

PTO errors. *Id.* at 1360–61. And while Congress created *inter partes* review “to provide a more efficient system for challenging patents,” it did not conclude that the system of *ex parte* reexamination was ineffective or detrimentally inefficient. To the contrary, the AIA did not correct any defects in *ex parte* reexamination. It left *ex parte* reexamination intact. See 35 U.S.C. §§ 301–307. Thus, while Congress’ justifications for making *inter partes* review prospective may be reasonable, they do not support the retroactive application of *inter partes* review to the ’714 patent.

Further, the justification for retroactive legislation must consider “[w]hether or not a person who could have anticipated the potential liability attaching to his chosen course of conduct would have avoided the liability by altering his conduct.” *Turner*, 428 U.S. at 17 & n.16. As discussed, while it was foreseeable that the ’714 patent might be subjected to *ex parte* review or an invalidity challenge in district court, no one could have anticipated that Congress would retroactively make the ’714 patent subject to a wholly new procedure like *inter partes* review — the patent “death squad.” Had the patent owner known of this risk, it might have sought narrower claims in examination or, in the alternative, forego patent protection altogether by keeping its inventions a trade secret.

Even if a patent owner could have anticipated potential liability and would not have taken any steps to alter its conduct, the Court should nevertheless find the retroactive application of *inter partes* review unconstitutional because there is evidence that *inter partes* review serves a purpose of “deterrence or

blameworthiness.” *See Turner*, 428 U.S. at 17–18. Indeed, Congress is not permitted to use retroactive legislation “as a means of retribution against unpopular groups or individuals.” *Landgraf*, 511 U.S. at 267; *E. Enters.*, 524 U.S. at 549 (Kennedy, J., concurring) (“Groups targeted by retroactive laws, were they to be denied all protection, would have a justified fear that a government once formed to protect expectations now can destroy them. Both stability of investment and confidence in the constitutional system, then, are secured by due process restrictions against severe retroactive legislation.”); *see also* Charles B. Hochman, *The Supreme Court and the Constitutionality of Retroactive Legislation*, 73 Harv. L. Rev. 692, 693 (1960) (“Still another reason underlying the hostility to retroactive legislation is that such a statute may be passed with an exact knowledge of who will benefit from it.”).

But that is exactly what Congress did with the retroactive application of *inter partes* review. It is clear that Congress created *inter partes* review to deter “patent trolls” and non-practicing entities from filing lawsuits, place blame on them for alleged litigation abuses and frivolous lawsuits, and seek retribution against them. *See* H.R. Rep. 112–352, at 57 (2011); *see also* 157 Cong. Rec. 2707 (daily ed. Feb. 28, 2011) (statement of Sen. Leahy); 157 Cong. Rec. 9938–39, 9949 (daily ed. June 23, 2011) (statement of Rep. Smith); 157 Cong. Rec. 9778 (daily ed. June 22, 2011) (statement of Rep. Goodlatte); 157 Cong. Rec. 13192 (daily ed. Sept. 8, 2011) (statement of Sen. Grassley).

Wi-LAN Inc., Collabo’s parent, has been unjustly smeared with the unfortunate label of “patent troll.”

See Moneybear Research, Seeking Alpha, *Wi-Lan: Feed the Patent Trolls?* (Feb. 22, 2016 12:22 AM ET) (“Wi-Lan is now a player in the intermediate industry of ‘intellectual property’ monetization, as it calls it, or ‘patent trolling’ as the Wi-Lan’s critics call it.”).<sup>14</sup> But it should not have to suffer the consequences of retroactive legislation as a result.

### C. The Court Should Not Find Waiver.

Collabo acknowledges that it did not raise its constitutional challenges to *inter partes* review with the Board. That would have been futile. See *Elgin v. Dep’t of Treasury*, 567 U.S. 1, 16 (2012) (“[A]djudication of the constitutionality of congressional enactments has generally been thought beyond the jurisdiction of administrative agencies.”). Moreover, Collabo raised challenges under the Takings and Due Process Clauses to the Federal Circuit, and the Federal Circuit did not find waiver. To the contrary, it addressed Collabo’s arguments on the merits. (Appx., *infra* at 15a–16a). Accordingly, the Court should not find waiver now.

## CONCLUSION

For the foregoing reasons, the Court should grant this Petition for Writ of Certiorari.

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<sup>14</sup> <https://seekingalpha.com/article/3914756-wi-lan-feed-patent-trolls> (last visited Nov. 1, 2019).

Respectfully submitted,

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## **APPENDIX**

1a

**APPENDIX A — JUDGMENT OF THE  
UNITED STATES COURT OF APPEALS FOR THE  
FEDERAL CIRCUIT, DATED AUGUST 5, 2019**

UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT

COLLABO INNOVATIONS, INC.,

*Appellant*

v.

SONY CORPORATION,

*Appellee*

ANDREI IANCU, UNDER SECRETARY OF  
COMMERCE FOR INTELLECTUAL PROPERTY  
AND DIRECTOR OF THE UNITED STATES  
PATENT AND TRADEMARK OFFICE,

*Intervenor*

2018-1311

Appeal from the United States Patent and Trademark  
Office, Patent Trial and Appeal Board in No. IPR2016-  
00941.

2a

*Appendix A*

**JUDGMENT**

THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

**AFFIRMED**

ENTERED BY ORDER OF THE COURT

August 5, 2019

/s/ Peter R. Marksteiner  
Peter R. Marksteiner  
Clerk of Court

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**APPENDIX B — OPINION OF THE UNITED  
STATES COURT OF APPEALS FOR THE  
FEDERAL CIRCUIT, DATED AUGUST 5, 2019**

UNITED STATES COURT OF APPEALS  
FOR THE FEDERAL CIRCUIT

2018-1311

COLLABO INNOVATIONS, INC.,

*Appellant*

v.

SONY CORPORATION,

*Appellee,*

ANDREI IANCU, UNDER SECRETARY OF  
COMMERCE FOR INTELLECTUAL PROPERTY  
AND DIRECTOR OF THE UNITED STATES  
PATENT AND TRADEMARK OFFICE,

*Intervenor*

August 5, 2019, Decided

Appeal from the United States Patent and Trademark  
Office, Patent Trial and Appeal Board in No. IPR2016-  
00941.

*Appendix B*

Before TARANTO, BRYSON, and STOLL, Circuit Judges.

STOLL, *Circuit Judge*.

After construing the phrases “secured . . . via an adhesive” and “wider area,” the Patent Trial and Appeal Board held all challenged claims of Collabo Innovations, Inc.’s U.S. Patent No. 5,952,714 unpatentable in an inter partes review. We agree with the Board’s constructions, determine substantial evidence supports its findings regarding the prior art, and hold Collabo’s other arguments unpersuasive. Accordingly, we affirm.

**BACKGROUND****I**

The ’714 patent “aims to provide a solid-state image sensing apparatus mountable to a video camera of high quality picture, which not only can reproduce vivid colors and fine pictures but also can be manufactured at a low cost.” ’714 patent col. 2 ll. 19-22. As shown in Figure 2, below, the disclosed chip package (21) for use in that apparatus has two openings (25 and 26). *Id.* at col. 4 ll. 53-59. Opening 25, through which light reaches the image-sensing CCD chip 27, is smaller than the chip, and opening 26 is larger than the chip. *Id.*

The patent claims both an apparatus and a method of manufacture. On appeal, Collabo focuses its arguments on claim 1, which reads:

- a package having a through hole therein,  
openings on both end faces thereof, and  
different opening areas of said openings,

*Appendix B*

a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and

a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a *wider area*, and thereby sealing said through hole, said solid-state image sensing device being *secured to said package via an adhesive*.

*Id.* at col. 9 ll. 20–30 (emphases added to indicate disputed claim terms).

## II

Sony Corp. petitioned for IPR of the '714 patent. Each of its proposed grounds of unpatentability relied on either Yoshino<sup>1</sup> or Wakabayashi<sup>2</sup> for disclosing the limitations recited in claim 1. Collabo responded to these grounds by urging the Board to construe “secured . . . via an adhesive” as limited to gluing, which Collabo contended distinguished both references. J.A. 494. Collabo further argued that neither reference disclosed the claimed “wider area.” J.A. 500, 527.

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1. JP Pat. App. Pub. No. S61-131690, T. Yoshino et al. (June 19, 1986). We cite the English translation provided at J.A. 281-83.

2. JP Pat. App. Pub. No. H07-45803, T. Wakabayashi et al. (Feb. 14, 1995). We cite the English translation provided at J.A. 284-86. Though Collabo refers to this reference as Takashi, *see, e.g.*, Appellant’s Br. 19 & n.2, we maintain the Board’s naming convention here.

*Appendix B*

Following a hearing, the Board issued a final written decision. It disagreed with Collabo’s proposed construction of “secured . . . via an adhesive,” finding that the term was plainly broader than “gluing.” *Sony Corp. v. Collabo Innovations, Inc.*, No. IPR2016-00941, 2017 WL 4418283, at \*4-7 (P.T.A.B. Oct. 3, 2017). And though no party had expressly proposed a construction of “wider area,” the Board recognized that the parties debated the meaning of that phrase. The Board construed it according to its plain and ordinary meaning, holding that “the opening ‘area’ is ‘wider’ where the image sensor is inserted.” *Id.* at \*12. The Board then analyzed each of Sony’s grounds of unpatentability and determined Sony had shown the claims unpatentable by a preponderance of the evidence. Collabo appeals. We have jurisdiction. 28 U.S.C. § 1295(a)(4)(A); *see also* 35 U.S.C. § 319.

**DISCUSSION**

On appeal, Collabo challenges the Board’s constructions of “secured . . . via an adhesive” and “wider area.” It further argues that even under the Board’s constructions, substantial evidence does not support the finding that Yoshino and Wakabayashi disclose the claimed “wider area.” And it disputes the constitutionality of IPR as applied to patents issued prior to the Leahy-Smith America Invents Act, Pub. L. 112-29, 125 Stat. 284 (2011). We address each argument in turn.



*Appendix B***I**

We first address Collabo’s argument that the Board erred in construing the phrases “secured . . . via an adhesive” and “wider area.” We review the Board’s ultimate claim constructions de novo, *In re Man Mach. Interface Techs. LLC*, 822 F.3d 1282, 1285 (Fed. Cir. 2016), and we review any subsidiary factual findings involving extrinsic evidence for substantial evidence, *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841, 190 L. Ed. 2d 719 (2015). Because the ’714 patent has expired, the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) applies. See *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012) (“[T]he Board’s review of the claims of an expired patent is similar to that of a district court’s review.”).

**A**

The Board rejected Collabo’s argument that the phrase “secured . . . via an adhesive” is limited to gluing and concluded that the plain meaning of the phrase includes other types of adhesive, such as injection molding. We agree. The plain claim language uses “adhesive,” not the narrower term “glue” or “gluing.” And though the specification does describe gluing, it is axiomatic that patent claims are not construed “as being limited to [an] embodiment.” *Phillips*, 415 F.3d at 1323. Neither the specification nor the prosecution history states that only gluing may be used, that glue should be preferred over other methods, or even that other methods would not work as well as glue. Though Collabo amended the claims to

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recite the “adhesive” limitations during prosecution to distinguish art allegedly using “a reflow solder process,” J.A. 686, Collabo did not clearly and unequivocally limit its claims to gluing, *see Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (explaining that disclaimer “requir[es] clear and unequivocal evidence that the claimed invention . . . does not include a particular feature”).

Extrinsic evidence further supports the Board’s construction. Dictionaries define “adhesive” as “[t]ending to adhere,” without reference to gluing. J.A. 466. A patent issued to Collabo’s expert describes epoxy and thermoplastic resins as “adhesives.” J.A. 968-69 at col. 4 ll. 46-48, col. 5 ll. 7-21. And Collabo’s expert admitted during deposition that the term “adhesive” encompasses more than merely gluing. *See* J.A. 808-09 (admitting “thermosetting resins were known as structural adhesives” and that “epoxy resins can be used as an adhesive”).

On appeal, Collabo argues that it disclaimed the prior art’s “imprecise” techniques of adhesion, but neither the claims, the specification, nor the prosecution history require any particular level of precision. Collabo further argues that the Board erred by first looking to the extrinsic evidence and particularly dictionary definitions. Oral Arg. at 6:33-46, <http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2018-1311.mp3>. But this argument is similarly unpersuasive. The Board merely noted the existence of dictionary definitions suggesting the ordinary meaning of “adhesive.” The Board’s approach

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is not inconsistent with our precedent. As we have explained, the Board “may look to extrinsic evidence so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record.” *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of “consult[ing] a general dictionary definition of [a] word for guidance” in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) (“[O]ur decisions, including *Phillips*, 415 F.3d at 1322, do not preclude the use of general dictionary definitions as an aid to claim construction.”).

**B**

Collabo also disputes the Board’s construction of “wider area,” as recited by claim 1. As a threshold issue, Collabo argues that the Board erred by construing this phrase because neither party asked it to do so. Collabo argues that the Board’s choice to construe the term in the final written decision deprived it of fair notice and opportunity to present arguments. We disagree. Collabo itself placed the meaning of “wider area” at issue. It argued that the asserted prior art references did not disclose the “wider area” limitation because they failed to show or describe the relative areas—both length and width—of their openings. *See, e.g.*, J.A. 502-08, 527-30. In response, Sony argued the opposite, asserting that the plain meaning of “wider” invokes only the “width” dimension while noting that Collabo had made an “implicit construction” argument. J.A. 742-43, 754-55.

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That Collabo did not expressly describe its argument as claim construction does not preclude the Board from construing “wider area” to resolve the parties’ dispute, particularly because both Sony and the Board recognized that Collabo was implicitly construing the phrase and because the Board discussed Collabo’s claim construction position at the hearing. *See, e.g.*, J.A. 742, 1038-40. In these circumstances, we conclude that Collabo had an adequate opportunity to present its position, and due process is satisfied. *See AC Techs. S.A. v. Amazon.com, Inc.*, 912 F.3d 1358, 1365 (Fed. Cir. 2019) (finding no due process violation where party had “adequate notice of the issues the Board w[ould] decide as well as an opportunity to be heard on those issues”).

We further agree with the Board that the plain and ordinary meaning of “wider area” requires only “that the opening ‘area’ is ‘wider’ where the image sensor is inserted.” *Sony*, 2017 WL 4418283, at \*12. The plain claim language supports the Board’s construction—“wider” inherently suggests the width dimension. Although the specification elsewhere discusses “smaller” and “larger” areas when comparing the entire opening area, *see, e.g.*, ’714 patent col. 2 ll. 36-38 (“the opening area is smaller than the entire area of CCD chip”), col. 7 ll. 46-52 (“a third opening 53 having the larger opening area than that of the opening 52”), claim 1 uses “wider” rather than one of these broader terms, further suggesting that the claim is comparing only the width dimension of the openings. The prosecution history contains no contrary statements.

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Collabo nonetheless urges us to hold that “wider” means “larger,” arguing that the specification uses “wider” to “mean[] greater or larger.” Appellant’s Br. 53. The intrinsic record undermines Collabo’s position. The specification uses *both* “wider” and “larger,” as discussed. And Collabo used “larger” rather than “wider” in other claims. *See, e.g.*, ’714 patent col. 10 ll. 6-22 (reciting “larger of two openings”).<sup>3</sup>

## II

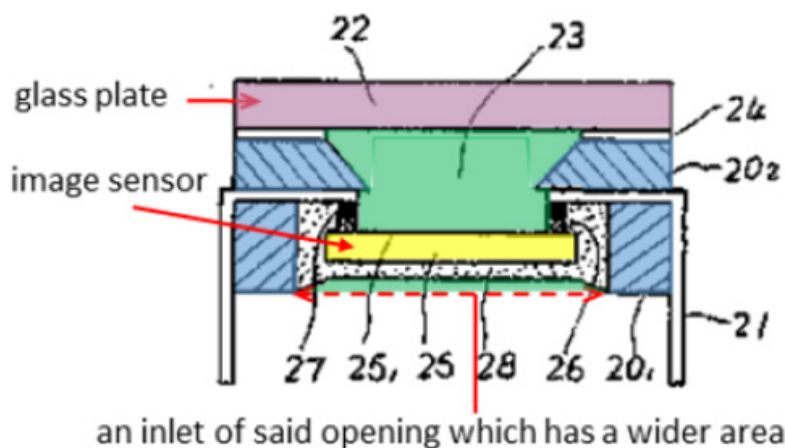
We next address Collabo’s assertion that even under the Board’s constructions, the Board erred by finding that the prior art discloses a “wider area.” We review this finding, a question of fact, for substantial evidence. *See Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1375 (Fed. Cir. 2018); *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1361 (Fed. Cir. 2012). Substantial evidence is “such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Biestek v. Berryhill*, 139 S. Ct. 1148, 1154, 203 L. Ed. 2d 504 (2019) (quoting *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229, 59 S. Ct. 206, 83 L. Ed. 126 (1938)).

Substantial evidence supports the Board’s finding that Yoshino discloses the recited “wider area.” Yoshino’s Figure 1, reproduced below with Sony’s annotations, shows the tapered upper opening 23 and the alleged “wider” lower opening, marked by the red dotted line:

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3. Collabo does not separately argue these claims on appeal.

## Appendix B

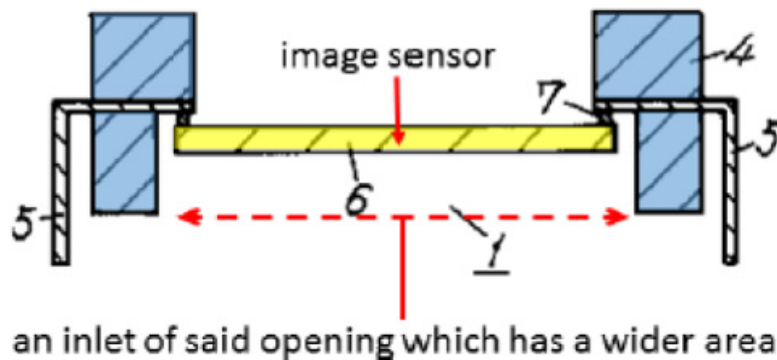


J.A. 199. The Board was called to decide whether the lower opening highlighted in red is wider than the narrowest point of the tapered opening 23. *See* Oral Arg. at 11:19-52 (“[W]e’re looking at that narrowest part . . .”), 16:35-45 (“[T]he relevant opening is at the bottom . . . of the anvil.”). Yoshino itself discloses that the chip 25 “is placed” after “glass plate (22) is hermetically secured . . . so as to cover the tapered opening (23).” J.A. 282. It follows that the lower opening is at least as wide as the chip, to permit insertion. Yoshino explains that the chip sits against a lip formed by bonding pads (26) at the interior edge (202) of the packaging. *Id.* As the Board found, Sony’s contention that the upper opening is narrower than the lower opening—at least by the width of the bonding pads—is thus “consistent with the geometry necessary to seal the image sensor into the package.” *Sony*, 2017 WL 4418283, at \*12; *see also* J.A. 197-98 (providing expert testimony that one of ordinary skill would understand the lower opening to be wider based on Yoshino’s assembly process).

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Yoshino and other record evidence further suggest a technical benefit from using an upper opening that is narrower than the chip, and thus also narrower than the lower opening. Yoshino states that the upper opening should be set to “at least cover the effective photosensitive section” of the chip. J.A. 282. It explains that using the tapered shape to control the light shining onto the chip through the upper opening “prevent[s] unnecessary light from being reflected and intruding inside to adversely affect the photoelectric properties” of the CCD chip. J.A. 281; *see also* J.A. 405-06 (showing chip geometry with “effective pixel region” in center of chip and describing methods of “preventing the [chip] from receiving any unwanted or stray light” outside of this area), 906 (describing problem of extra light interfering with chip function); Oral Arg. at 30:03-43 (“[W]e’re talking about light here, getting only on the photosensitive elements of the chip and not others.”).

Similar structural characteristics provide substantial support for the Board’s finding that Wakabayashi discloses a lower opening that is wider than the upper opening. Wakabayashi’s Figure 1, again as annotated by Sony, illustrates the upper and lower openings:



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J.A. 263. Like Yoshino, Wakabayashi describes that the chip (6) sits against a lip formed by bumps (7) within the package (4). J.A. 285. And like Yoshino, Wakabayashi explains the desirability of shaping the upper opening “to form desirable shapes” for “the optical characteristics” of the chip. *Id.*; *see also* Oral Arg. at 30:03-43.

Collabo argues that the Board erred by relying on the figures reproduced above, citing cases for the general proposition that patent figures are not assumed to be drawn to scale. *See* Appellant’s Br. 55-61. For example, Collabo cites *Hockerson-Halberstadt, Inc. v. Avia Group International, Inc.*, 222 F.3d 951 (Fed. Cir. 2000), for the proposition that “patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” *Id.* at 956. But the cases cited by Collabo are inapplicable—the references are not “completely silent” on the relative dimensions of the openings. Contrary to Collabo’s assertion, the Board’s findings have support beyond the figures alone, and substantial evidence supports the Board’s conclusions.

### III

Finally, we address Collabo’s challenge to IPR as applied to patents issued prior to passage of the America Invents Act, which created these proceedings. Collabo avers, correctly, that the Supreme Court did not address the constitutionality of such IPR proceedings in *Oil States Energy Services, LLC v. Greene’s Energy Group, LLC*, 138 S. Ct. 1365, 200 L. Ed. 2d 671 (2018). It asks us to hold



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that IPR is either unlawful or is a taking that entitles it to compensation under the Fifth Amendment.

This court, however, recently considered these issues in *Celgene Corp. v. Peter*, No. 18-1167, 2019 U.S. App. LEXIS 22517, [slip op.] at 26-36 (Fed. Cir. July 30, 2019). Our decision there forecloses Collabo's argument. When the *Celgene* patent issued, it was already subject to both judicial and administrative validity challenges. 2019 U.S. App. LEXIS 22517, \*39. We acknowledged that IPR differs from both district court proceedings and prior administrative validity proceedings, but we held that the variations from the administrative validity review mechanisms in place upon patent issuance are not so significant as to render IPR unconstitutional or effectuate a taking. *Id.*; see also 2019 U.S. App. LEXIS 22517, \*32 & n.13 (affirming that our prior decisions ruling that retroactive application of reexamination does not violate the Fifth Amendment, the Seventh Amendment, or Article III "control the outcome" of similar challenges to IPR).

Like the patent at issue in *Celgene*, when the '714 patent issued, patent owners already expected that their patents could be challenged in district court and "[f]or forty years" had expected that "the [Patent Office] could reconsider the validity of issued patents on particular grounds, applying a preponderance of the evidence standard." 2019 U.S. App. LEXIS 22517, \*41. Accordingly, application of IPR to Collabo's patent, on grounds that were available for Patent Office reconsideration when the patent was issued and under the same burden of proof, does not create a constitutional issue, and we reject Collabo's constitutional challenge.

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**CONCLUSION**

We have reviewed the parties' remaining arguments and find them unpersuasive. Accordingly, we affirm the Board.

**AFFIRMED**

**COSTS**

Costs to appellee.

**APPENDIX C — DECISION OF THE UNITED  
STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE PATENT TRIAL AND APPEAL  
BOARD, DATED OCTOBER 3, 2017**

UNITED STATES PATENT  
AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL  
AND APPEAL BOARD

SONY CORPORATION,

*Petitioner,*

v.

COLLABO INNOVATIONS, INC.,

*Patent Owner.*

Case IPR2016-00941

Patent 5,952,714

Entered: October 3, 2017

Before DAVID C. McKONE, GREGG I. ANDERSON,  
and JENNIFER MEYER CHAGNON, *Administrative  
Patent Judges.*

ANDERSON, *Administrative Patent Judge.*

**FINAL WRITTEN DECISION**  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

*Appendix C***I. INTRODUCTION**

Sony Corporation (“Petitioner”)<sup>1</sup> filed a Petition (Paper 2, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1–13, 15, and 16 (“the challenged claims”) of U.S. Patent No. 5,952,714 (“the ’714 patent,” Ex. 1001), filed July 30, 1996.<sup>2</sup> Collabo Innovations, Inc. (“Patent Owner”) elected not to file a Preliminary Response. On October 13, 2016, we granted the Petition and instituted trial on claims 1–13, 15, and 16 of the ’714 patent. Paper 6 (“Institution Decision” or “Inst. Dec.”).

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 11, “PO Resp.”), and Petitioner filed a Reply (Paper 18, “Pet. Reply”). The Petition is supported by the Declaration of R. Michael Guidash (“Guidash Declaration,” “Guidash Decl.,” Ex.1002). Patent Owner proffered the Declaration of Dr. Martin Afromowitz (“Afromowitz Declaration,” “Afromowitz Decl.,” Ex. 2001). Petitioner took Dr. Afromowitz’s deposition (“Afromowitz Deposition,” “Afromowitz Dep.,” Ex. 1028). Patent Owner took Mr. Guidash’s deposition (“Guidash Deposition,” “Guidash Dep.,” Ex. 1029).

An oral hearing was held on July 11, 2017. The transcript of the hearing has been entered into the record. Paper 26 (“Tr.”).

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1. Sony Corporation of America and Sony Electronics Inc. also are identified as real-parties-in-interest. Pet. 1.

2. The ’714 patent was filed July 30, 1996, under the Patent Cooperation Treaty (PCT). Ex. 1001, at [22], [86]. Thus, Petitioner alleges the ’714 patent expired on July 30, 2016. Pet. 11. *See* section II.A. below.

*Appendix C*

We have jurisdiction under 35 U.S.C. § 6(b). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). We conclude, for the reasons that follow, that Petitioner has shown by a preponderance of the evidence that claims 1–13, 15, and 16 of the ’714 patent are unpatentable.

**A. Related Proceedings**

The ’714 patent has been asserted by Patent Owner against Petitioner in *Collabo Innovations, Inc. v. Sony Corp.*, Case No. 1-15-cv-01094 (D. Del.), which was filed on November 25, 2015, and first served (on Sony Electronics Inc.) on February 22, 2016. Pet. 1; Paper 5, 1.

**B. Technology Overview**

The ’714 patent relates to a package for a semiconductor “image sensing apparatus using a solid-state image sensing device” (also referred to as a “CCD chip” or “chip”). Ex. 1001, col. 1, ll. 6–8. The image sensing apparatus is mounted on a video camera which reproduces pictures. *Id.* at col. 1, ll. 19–29. The chip is mounted in a package made of plastic, glass, or ceramic material. *Id.* at col. 1, ll. 8–10. The background of the technology and the ’714 patent are discussed below.

**1. Background of the Technology**

The process of aligning and securing the chip in a package is called “mount[ing].” *See* Ex. 1001, col. 1, ll. 42–61. One prior art method of mounting an image sensor is “die bonding.” *Id.* at col. 1, ll. 47–48. “Die bonding” refers

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to affixing the back side of a chip (a ‘die’) to substrate, for example, the base of a package.” Guidash Decl. ¶ 44. “This leaves the upper (or front side) surface of the chip exposed.” *Id.*

Figure 10 of the ’714 patent is reproduced below.

**FIG. 10**  
**PRIOR ART**

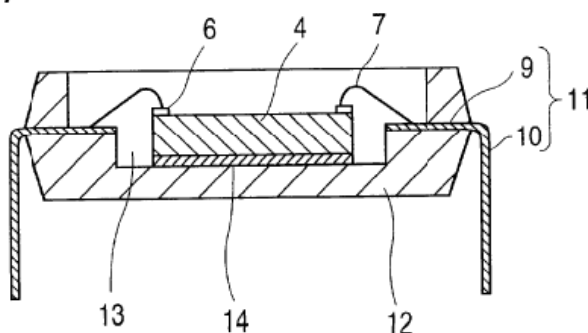


Figure 10 is a cross section of prior art chip 4 mounted in plastic package 12. Ex. 1001, col. 1, ll. 53–56. Lead frame 11 allows for electrical connections to external circuitry and includes inner lead 9 and outer lead 10 molded into plastic package 12. *Id.*; *see also* Guidash Decl. ¶¶ 43–45 (describing die-bonding). CCD chip 4 is die-bonded by conductive paste 14 to concave portion 13 of package 12. Ex. 1001, col. 1, ll. 57–58. Electrode pad 6 on the CCD chip is “wire-bonded to the inner lead 9 by the metal lead 7 as same as the case of the [conventional] ceramic package.” *Id.* at col. 1, ll. 59–60. Upon mounting the image sensing apparatus to a “three-eye video camera and . . . accurately position[ing]” the apparatus, the “package 12 to which the

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CCD chip 4 is die-bonded” results in “high accuracy.” *Id.* at col. 1, l. 66–col. 2, l. 5.

**2. The '714 Patent (Ex. 1001)**

The invention of the '714 patent is described in several different embodiments. Ex. 1001, col. 4, ll. 15–40 (Brief Description of the Drawings). Figure 2 of the '714 patent is reproduced below.

**FIG. 2**

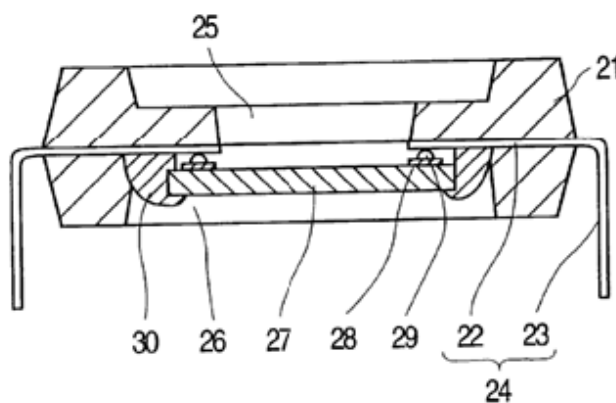


Figure 2 is a cross section of the “first exemplary embodiment” of the image sensing apparatus. Ex. 1001, col. 4, ll. 64–67. Epoxy resin is mixed with inorganic filler to form package 21, which includes lead frame 24. *Id.* at col. 4, l. 67–col. 5, l. 4. Two openings 25 and 26 are formed respectively at the front side and back side of the package,

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opening 25 being of a smaller area than opening or inlet 26. *Id.* at col. 5, ll. 10–12; *see id.* at col. 4, ll. 53–58. “A frame body of the lead frame 24 is cut away, and the outer lead 23 is bent toward the inlet 26, thereby forming the package 21.” *Id.* at col. 5, ll. 4–6. Bump 29 is formed on electrode pad 28 of CCD chip 27 and the bump is press-fitted to inner lead 22 through inlet 26. *Id.* at col. 5, ll. 6–12.

“During [the] press-fit operation, a position signal is feedbacked from a[n] optical position adjusting device (not shown) disposed in front of the CCD chip 27 to the mounting jig, thereby finely adjusting an orientation of the CCD chip 27 and disposing the CCD chip 27 on the back side of the step of the package 21.” Ex. 1001, col. 5, ll. 12–18. Simultaneously, ultra-violet hardening adhesive 30 is injected onto four sides of the CCD chip to glue the chip to package 21. *Id.* at col. 5, ll. 18–21. Thus, “CCD chip 27 is accurately mounted to the package 21.” *Id.* at col. 5, ll. 21–22.

**C. Illustrative Claims**

Of the challenged claims, claims 1, 2, 6, 7, and 12 are independent apparatus claims and claims 13, 15, and 16 are independent method claims. Claims 3–5 depend from claim 2. Claims 8–11 are multiple dependent claims that depend from either claim 6 or claim 7. Claims 1 and 13 are reproduced below:

1. A solid-state image sensing apparatus comprising:



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a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings,

a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and

a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.

Ex. 1001, col. 9, ll. 20–30.

13. A manufacturing method of a solid-state image sensing apparatus comprising a package having a through hole therein, a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and a solid state image sensing device mounted in said package, said manufacturing method comprising the steps of:

inserting said solid-state image sensing device into said through hole,

connecting an electrode pad of the solid-state image sensing device inserted in the through hole to the inner lead via a bump or

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an anisotropic conductor having only vertical conductivity, while simultaneously adjusting the optical positioning of said solid-state image sensing device, and

securing said solid-state image sensing device to the package with an adhesive.

*Id.* at col. 10, l. 56–col. 11, l. 4.

#### **D. Asserted Grounds of Unpatentability**

Petitioner challenges claims 1–13, 15, and 16 patent as unpatentable on the following grounds. Pet. 2–3, 15–60.

Reference(s)	Basis	Claim(s) Challenged
Yoshino <sup>3</sup>	§ 102(b)	1
Yoshino and Izumi <sup>4</sup>	§ 103(a)	6

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3. JP Pat. Application Pub. No. S61-131690, to T. Yoshino et al., published June 19, 1986 (“Yoshino,” Ex. 1003 (English translation)/Ex. 1006 (Japanese)). All citations to Yoshino and the other translated Japanese references are to the English translations thereof.

4. JP Pat. Application Pub. No. 63-221667, to A. Izumi et al., published Sept. 14, 1988 (“Izumi,” Ex. 1016 (English translation)/Ex. 1017 (Japanese))

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Reference(s)	Basis	Claim(s) Challenged
Yoshino, Nagano, <sup>5</sup> and Wakabayashi <sup>6</sup>	§ 103(a)	7
Yoshino, Izumi/Nagano, Hirosawa, <sup>7</sup> and Nita <sup>8</sup>	§ 103(a)	8
Yoshino and Izumi/ Nagano	§ 103(a)	9
Yoshino, Izumi/Nagano, and Wakabayashi	§ 103(a)	10

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5. JP Pat. Application Pub. No. H06-29507, to T. Nagano, published Feb. 4, 1994 (“Nagano,” Ex. 1018 (English translation)/Ex. 1019 (Japanese)).

6. JP Pat. Application Pub. No. H07-45803, to T. Wakabayashi et al., published Feb. 14, 1995 (“Wakabayashi,” Ex. 1004 (English translation)/Ex. 1007 (Japanese)).

7. JP Pat. Application Pub. No. S60-74880, to I. Hirosawa et al., published Apr. 27, 1985 (“Hirosawa,” Ex. 1020 (English translation)/Ex. 1021 (Japanese)).

8. JP Pat. Application Pub. No. H07-78951, to S. Nita, published Mar. 20, 1995 (“Nita,” Ex. 1011 (English translation)/Ex. 1023 (Japanese)).

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Reference(s)	Basis	Claim(s) Challenged
Yoshino, Izumi/Nagano, and Onishi <sup>9</sup>	§ 103(a)	11
Yoshino and Tobase <sup>10</sup>	§ 103(a)	12
Yoshino and Hikosaka <sup>11</sup>	§ 103(a)	13
Yoshino, Izumi, Nagano, and Hikosaka	§ 103(a)	15
Yoshino, Tobase, and Hikosaka	§ 103(a)	16
Wakabayashi	§ 103(a)	1

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9. JP Disc. No. H05-6989, to E. Onishi, disclosed Jan. 14, 1993 (“Onishi,” Ex. 1014 (English translation)/Ex. 1015 (Japanese)).

10. JP Pat. Application Pub. No. H05-275611, to K. Tobase, published Oct. 22, 1993 (“Tobase,” Ex. 1022 (English translation)/Ex. 1013 (Japanese)).

11. JP Pat. Application Pub. No. S59-225560, to M. Hikosaka, published Dec. 18, 1984 (“Hikosaka,” Ex. 1005 (English translation)/Ex. 1008 (Japanese)).

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Reference(s)	Basis	Claim(s) Challenged
Wakabayashi and Fujii <sup>12</sup>	§ 103(a)	2-4
Wakabayashi, Fujii, and Onishi	§ 103(a)	5
Wakabayashi and Hikosaka	§ 103(a)	13

**II. ANALYSIS****A. Claim Construction**

Petitioner alleges the '714 patent expired on July 30, 2016. *See* Pet. 11. On the face of the published '714 patent, the application for the '714 patent was filed as a PCT application on July 30, 1996. Ex. 1001, at [22]. Thus, the July 30, 1996, filing date of the PCT application is the calculation date for the expiration of the '714 patent under 35 U.S.C. § 154(a)(2). *See Broad. Innovation, L.L.C. v. Charter Commc'ns, Inc.*, 420 F.3d 1364, 1368 (Fed. Cir. 2005). Patent Owner agrees that the '714 patent has expired. PO Resp. 12. On this record, we determine that the '714 patent has expired.

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12. JP Pat. Application Pub. No. H06-85221, to H. Fujii, published Mar. 25, 1994 ("Fujii," Ex. 1024 (English translation)/ Ex. 1025 (Japanese)).

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“[T]he Board’s review of the claims of an expired patent is similar to that of a district court’s review.” *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012) (internal citations omitted). Thus, we construe the claims in accordance with their ordinary and customary meanings, as would be understood by a person of ordinary skill in the art, in the context of the specification. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Petitioner proposed six terms for construction. Pet. 11–14. We preliminarily construed two terms in the Institution Decision, “electrode pad(s)” and “bump.”<sup>13</sup> These two terms are not disputed and their constructions are not dispositive of any patentability issue at trial. *See* PO Resp. 11. Accordingly, we need not construe these two terms for purposes of this Decision. *See Vivid Techs. Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Only those terms that are in controversy need to be construed and only to the extent necessary to resolve the controversy).

As to the remaining claim terms, including the additional terms Petitioner proposed for construction, we proceeded on the plain and ordinary meaning of the words in the context of the claim in which they appear or how the term would have been understood by the person of ordinary skill in the art. We determined that

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13. We construed “electrode pad(s)” to mean “a pad disposed on the substrate which provides for an electrical connection point.” Inst. Dec. 9. We construed “bump” to mean “a mound or hump of conductive material.” *Id.* at 10.

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some of Petitioner’s construction arguments were instead arguments relating to application of the claim language to the issues presented. *See* Inst. Dec. 9 n.13.

Patent Owner proposes that “‘secured’ to the package via an adhesive” (the “secured via an adhesive” limitation)<sup>14</sup> should be construed as “‘gluing’ to the package.” PO Resp. 13. Petitioner argues the term should be given its plain and ordinary meaning, and requires only “that the device be affixed to the package via a material that tends to adhere.” Pet. Reply 1–2 (citing Inst. Dec. 14). The Institution Decision did not separately construe the “secured via an adhesive” limitation and, as Petitioner asserts, applied the plain and ordinary meaning in analyzing the claim limitations. *See* Inst. Dec. 14–15 (citing THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE, 16 (New College Edition 1979) (Ex. 3001) in connection with claim 1 analysis).

Patent Owner’s evidence and argument is found at pages 11 through 15 of its Response.<sup>15</sup> Arguing that

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14. For example, claim 1 recites a “solid-state image sensing device being secured to said package via an adhesive.” The other independent claims all include “secured to” and “via an adhesive,” varying in exactly what is secured to what. *See, e.g.*, claim 2 (“solid-state image sensing device being *secured to* said main body of said package *via an adhesive*”).

15. Patent Owner first argues that “Mr. Guidash’s testimony [in the Guidash Declaration] regarding claim construction, should be afforded little to no weight.” PO Resp. 11–12. Our claim construction analysis does not rely on the Guidash Declaration, thus Patent Owner’s argument is not relevant. We do consider

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“secured via adhesive” is limited to “gluing,” Patent Owner contrasts “gluing” with the epoxy resin manufacturing method described in the Specification where epoxy resin is “‘injected into a mold’ that is used to form the package including the lead frame.” PO Resp. 13 (citing, e.g., Ex. 1001, col. 4, l. 67–col. 5, l. 4). Patent Owner then cites to several parts of the Specification that describe the process as “gluing,” as opposed to the previously described injection process. *Id.* at 13–14 (citing Ex. 1001, Abstract, col. 3, ll. 10–11, col. 3, ll. 27–29, col. 3, ll. 45–47, col. 3, ll. 58–59, col. 3, ll. 64–65, col. 5, ll. 18–21, col. 6, ll. 23–28, col. 8, ll. 18–22, col. 8, ll. 28–33). Patent Owner also argues that the “figures of the ’714 patent show the adhesive (i.e., ultra-violet hardening adhesive 30) is applied such that the substrate is secured to the package by gluing it to the package.” *Id.* at 14 (citing Ex. 1001, Figs. 3, 5).

Patent Owner adds extrinsic evidence in the form of the Afromowitz Declaration that “one having ordinary skill in the art, gleaning relevant information from the specification and prosecution history would have known that securing to the package with an adhesive would not include the use of injection molding because ‘adhesive’ as used in the art would not, as the term is typically used, include injection molding.” PO Resp. 14–15 (citing Afromowitz Decl. ¶ 32). Patent Owner concludes with an argument that “securing with an adhesive, in light of the specification, would not include injection molding because of the higher probability of disturbing, even slightly, the

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the Guidash Declaration in section II.D.2. below relating to the application of the prior art to the “secured via an adhesive” limitation.



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position of the imaging device in the x, y, or z axis, in contradiction to the purpose of the '714 patent[,] which is to be 'positioned within its package to a high degree of precision.'" *Id.* at 15.

Petitioner responds that "[n]othing in the claims, the specification, or the file history necessitates any specific securing technique or adhesive agent, and this claim term should be given its plain and ordinary meaning." Pet. Reply 2. Petitioner summarizes Patent Owner's argument as a "gluing" process is within the scope of "securing with an adhesive" and an injection molding process is not. *Id.* citing (PO Resp. 13–15). Petitioner makes four arguments in opposition to Patent Owner's proposal and in support of Petitioner's proposal to use the plain and ordinary meaning of the "secured via an adhesive" limitation.

First, Petitioner argues "[u]se of 'glued' in the specification does not limit the actual claim term 'secured.'" Pet. Reply 3–4. Following the standard applied in the district courts, Petitioner argues Patent Owner's construction relies improperly on "embodiments that describe the substrate/image sensor as 'glued' to the package." *Id.* at 3 (citing *Phillips*, 415 F.3d at 1323 (exemplary embodiments should not be imported into the claims)). Further, Petitioner argues the fact that a specific, and unclaimed, molding step is described does not exclude molding from securing via adhesive. *Id.* at 3–4.

Second, Petitioner argues "[t]he '714 patent's positioning process does not require that 'secured' be construed as 'gluing.'" Pet. Reply 4–6. Though not cited

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in Patent Owner’s Response, Petitioner responds to the testimony in paragraph 31 of the Afromowitz Declaration that an “injection or pressing operation forces flow of the viscous resin encapsulant, and ***if used around wire-bonded chips***, for example, can cause wire sweep . . . , resulting in shorts, and other deformations, including unintended movement of the chip.”<sup>16</sup> *Id.* at 4 (quoting Afromowitz Decl. ¶ 31). Petitioner argues the ’714 patent does not teach wire bonded chips but rather “one that is bonded using bumps or a conductive adhesive” and, in any event, bonding occurs before securing by adhesive. *Id.* (citing Ex. 1001, claim 1). Petitioner also refutes the Afromowitz Declaration testimony that optical positioning is not possible with a “molding process,” again pointing out that positioning takes place prior to the securing via adhesive step and thus a molding process would not interfere with positioning. *Id.* at 5–6 (citing Afromowitz Decl. ¶ 32; Ex. 1001, col. 10, l. 64–col. 11, l. 4 (claim 13 method steps)). Dr. Afromowitz testified in his deposition that thermoset epoxies can shrink while curing, which could slightly shift the position of a chip bonded via indium bumps. Afromowitz Dep., 72:9–73:20. Petitioner responds that the ’714 patent does not teach indium bumps and “both Yoshino and Wakabayashi teach using a resin to secure a bump-bonded chip to the package, and neither reports chip displacement issues when resin is cured.” Pet. Reply 6 (citing Ex. 1003, 3; Ex. 1004 ¶ 15).

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16. Petitioner notes that the testimony mentions two references never made of record and is unsupported. Pet. Reply 4 n.1.

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Third, Petitioner disagrees with Patent Owner's contention that one of ordinary skill would have understood that the phrase "secured to said package via an adhesive" excludes molding methods. Pet. Reply 7–10 (citing PO Resp. 14–15 (citing Afromowitz Decl. ¶ 32)). Petitioner asserts that the testimony in the Afromowitz Declaration is not credible because Dr. Afromowitz's deposition revealed a lack of familiarity with molding methods he testified about. *Id.* at 7 (citing Afromowitz Dep., 35:18–36:4, 40:3–17, 41:14–42:20, 43:15–44:11). Specifically, although Petitioner acknowledged that Dr. Afromowitz "holds a patent directed to 'Fabrication of Molds and Mold Components Using a Photolithographic Technique and Structures Made Therefrom,'" Dr. Afromowitz testified the patent was "peripherally related to molding of resins that are part of the technology described in patent '714." *Id.* (citing Afromowitz Dep., 13:17–25). Petitioner argues that Dr. Afromowitz "lacks practical experience with package design" and was involved with only one industry project prior to 1974. *Id.* (citing Afromowitz Dep., 9:21–11:1, 16:4–13; Ex. 2001, Appendix A). Petitioner also highlights that Dr. Afromowitz has no teaching experience and has not done any research relating to design or fabrication of semiconductor packaging. *Id.* at 7–8 (citing Afromowitz Dep., 11:12–15, 12:3–13:17).

Petitioner contrasts Dr. Afromowitz's experience with that of Mr. Guidash. Pet. Reply 8. Mr. Guidash testifies that "molded resin" is "a material sometimes used in the fabrication of package bodies that functions here as an adhesive." Guidash Decl. ¶¶ 69, 108. Mr. Guidash was employed at Kodak for 31 years and was "[r]esponsible

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for all aspects of IC . . . packaging” for “Instant Camera IC’s.” Guidash Curriculum Vitae (Ex. 1026), 3. Mr. Guidash testified in his deposition to four projects where he designed image sensor packages. Guidash Dep., 7:11–10:12; 11:8–12:24, 19:13–20:7, 34:19–37:18, 44:19–45:20. Petitioner relies on these qualifications of Mr. Guidash to assert that “he is more qualified to opine on how one of skill would have understood the materials and processes used.” Pet. Reply 8.

Petitioner further cites to testimony from the Afromowitz Deposition, including that “epoxy resins can be used as an adhesive.” Pet. Reply 9 (citing Afromowitz Dep., 48:5–49:16). Petitioner notes that Dr. Afromowitz is the inventor on a patent teaching that “[t]hermosetting resins are well-known and are widely used as matrices for advanced composite materials and structural adhesives.” *Id.* at 9–10 (citing Ex. 1030,<sup>17</sup> col. 4, ll. 46–48; Afromowitz Dep., 14:14–15:3). Additionally, Petitioner points to the Afromowitz Deposition testimony that “a resin functions as a ‘binder’ to hold together particles that otherwise would not ‘adhere to one another.’” *Id.* at 10 (citing Afromowitz Dep., 52:1–12). Last, Petitioner cites to the Afromowitz patent (Ex. 1030) for additional teachings that “*thermosetting resins*” can be adhesives used in molds. *Id.* (citing Ex. 1030, col. 1, ll. 35–36); *see also id.* (citing Afromowitz Dep., 53:10–15 (“[A] resin would need a special ‘releasing agent’ in order for it to *not* act as an adhesive with regard to the mold itself.”)).

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17. U.S. Patent No. 5,009,102, issued April 23, 1991, to Martin A. Afromowitz.

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Fourth, Petitioner argues that construing the “secured via an adhesive” limitation to mean gluing is ambiguous. Pet. Reply 10–11. Petitioner bases this assertion on the alleged inability of Dr. Afromowitz to define “adhesive.” *Id.* at 11 (quoting Afromowitz Dep., 67:6–68:17 (“[T]here’s hardly any generalized statement one could make.”)).

We are not persuaded by Patent Owner’s arguments and conclude that the plain and ordinary meaning of “adhesive” is “to adhere.” We find that Patent Owner’s construction relies improperly on “embodiments that describe the substrate/image sensor as ‘glued’ to the package.” We further find that the fact that a specific, and unclaimed, molding step is described does not exclude molding from “securing via adhesive.” We therefore decline to adopt Patent Owner’s proposed construction of the “secured via an adhesive” limitation as meaning “gluing.” Further, we find that although “glue” is an “adhesive,” is not the only “adhesive” that falls within the scope of the claims. Thus, the claim language supports a construction not limited to “gluing.” Neither party cites to the prosecution history for construction of the “secured via an adhesive” term. In sum, we reject Patent Owner’s construction because it relies on improperly importing an embodiment described in the Specification into the claim. *See Phillips*, 415 F.3d at 1323.

Accordingly, we do not agree with Patent Owner’s arguments that “secured via an adhesive” excludes injection molding. These arguments rely on extrinsic evidence. Tellingly, the Afromowitz patent (Ex. 1030),

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and the Afromowitz Deposition testimony cited above by Petitioner, both support our finding that epoxy resin used in molding the semiconductor package is an adhesive. We are not persuaded that a molding process would interfere with positioning the package because positioning, according to the claims, takes place prior to the securing via adhesive. *See* Ex. 1001, col. 10, l. 64– col. 11, l. 4 (claim 13 method steps). Regardless, only claims 13–16 recite any limitation that requires precision positioning. Even if injection molding interfered with positioning, the claim limitation regarding “secured via adhesive” would still be met with respect to all other claims.

We have reviewed the parties’ arguments based on their respective expert’s testimony. The Afromowitz Declaration testimony that one of ordinary skill would not understand “adhesive” to encompass injection molding is entitled to little, if any, weight because it is contradicted by statements made in the Afromowitz patent (Ex. 1030) and at his deposition. *See* Pet. Reply 7–10. However, Mr. Guidash does not testify specifically as to the construction of the “secured via an adhesive” limitation. Thus, expert testimony is of little assistance, nor is it necessary, to reach our determination.

This construction also is supported by the dictionary reference. *See* Ex. 3001, 16; *see also Phillips*, 415 F.3d at 1318 (dictionaries can be useful in claim construction). Applying the district court standard for claim construction as per *Phillips*, we decline to limit the “secured via an adhesive” limitation to “gluing.”

*Appendix C***B. Incorporation by Reference**

Patent Owner argues the Petition improperly incorporates arguments by reference. PO Resp. 15–17. Patent Owner contends eight paragraphs of the Guidash Declaration were improperly incorporated to support the level of ordinary skill. *Id.* at 15 (citing Guidash Decl. ¶¶ 52–59). Patent Owner argues this violates our rules regarding the word count limit because, with the material allegedly incorporated by reference, the Petition would exceed the word limit maximum under 37 C.F.R. § 42.24(a) (1). *Id.* at 15–16. Patent Owner also attacks the Petition for an alleged failure to identify the grounds of the challenge by failing “to provide analysis of one of the required *Graham* factors that are required factual inquiries when making an obviousness argument.” *Id.* at 16 (citing 35 U.S.C. § 312(a)(3), 37 C.F.R. § 42.6 (a)(3), other citations omitted). Patent Owner requests that we terminate the Petition on all grounds of obviousness or that we “consider only the arguments properly supported in the Petition.” *Id.* at 16–17 (citations omitted).

Although Patent Owner is correct that the Petition does not specify a level of ordinary skill, we are not persuaded that Petitioner is precluded from proceeding on the basis of the level of ordinary skill set forth in the Guidash Declaration. *See* section II.E.1. below (citing Guidash Decl. ¶ 53). Patent Owner raises only one incorporation by reference issue, the level of ordinary skill. *See* Pet. Reply 11. Patent Owner did not argue a different level of ordinary skill should be used in its Patent Owner Response or at the final hearing. Petitioner does allege a

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person of ordinary skill would find the challenged claims obvious. *See, e.g.*, Pet. 24 (regarding the combination of Yoshino and Izumi). Under these circumstances, this is at most a *de minimis* alleged incorporation by reference. Neither are we persuaded that the Petition is deficient for failure to copy the level of ordinary skill from the Guidash Declaration. We decline to find that either alleged deficiency requires termination of all obviousness grounds. Moreover, we agree with Petitioner that the prior art itself reflects the level of ordinary skill. *See* Pet. Reply 11 (citing *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)).

**C. Law of Anticipation**

In order for a prior art reference to serve as an anticipatory reference, it must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Anticipation “requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention.” *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008) (citing *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1379 (Fed. Cir. 2003); *Cont’l Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1267–69 (Fed. Cir. 1991)).

As the Federal Circuit has held,

This modest flexibility in the rule that  
“anticipation” requires that every element



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of the claims appear in a single reference accommodates situations where the common knowledge of technologists is not recorded in the reference; that is, where technological facts are known to those in the field of the invention, albeit not known to judges. It is not, however, a substitute for determination of patentability in terms of § 103.

*Cont'l Can*, 948 F.2d at 1268–69.

The elements must be arranged as required by the claim, but identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Furthermore,

unless a reference discloses within the four corners of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.

*Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). Whether a patent is invalid as anticipated is a two-step inquiry. *See Power Mosfet Tech., LLC v. Siemens AG*, 378 F.3d 1396, 1406 (Fed. Cir. 2004). The first step requires construction of the claims. *Id.* The second step in the analysis requires a comparison of the properly construed claim to the prior art. *Id.*

Petitioner alleges claim 1 is anticipated by Yoshino. Pet. 15–19. Petitioner supports its position with the Guidash Declaration. *See* Guidash Decl. ¶¶ 66–69, 96–114. Patent Owner disagrees. PO Resp. 19–30. Patent Owner’s position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 33–36.

Yoshino discloses a packaging substrate for a solid-state image sensing device, where the device is mounted in a through hole and bonded to inner leads. Ex. 1003, 2. Yoshino's Figure 1 is reproduced below.

Yoshino's Figure 1 is a cross-section of the invention of Yoshino. *Id.* at 3. Yoshino teaches packaging substrate 20 and opening 23. *Id.* "The solid-state image sensor (25)

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is placed so that the bonding pads (26) of the solid-state image sensor (25) are aligned with the electrode leads (21), and the bonding pads (26) and the electrode leads (21) aligned therewith are connected via a conductive bonding material (27).” *Id.* The solid-state image sensor is “supported” in the packaging substrate “via a molded resin (28).” *Id.*

## 2. Petitioner’s Arguments and Evidence

The preamble of claim 1, limitation 1a in the Petition, recites “[a] solid-state image sensing apparatus.”<sup>18</sup> Yoshino is directed to “[a] solid-state image pickup device characterized by comprising a solid-state image sensor, [and] a packaging substrate supporting said solid-state image sensor.” Ex. 1003, 2 (claim 1). Petitioner relies on the preceding and the Guidash Declaration to show that Yoshino discloses the preamble. Pet. 15 (citing Guidash Decl. ¶ 100).

Limitation 1b recites “a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings.” Petitioner points

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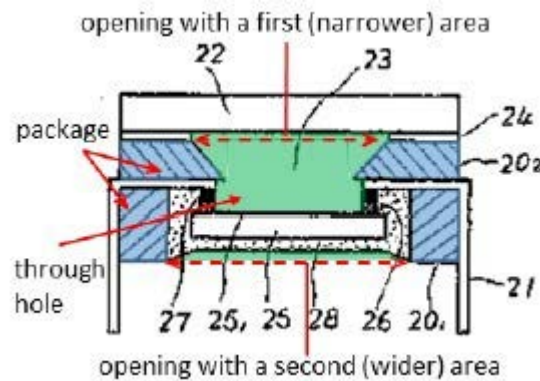
18. We adopt Petitioner’s convention of the claim number and a letter for each limitation. For example, the preamble is “1a.” Petitioner proceeds on the basis that the preamble is limiting. In this instance the preamble is simply an introduction to the general field of the claim, i.e., “solid-state image sensing apparatus.” See *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1343 (Fed. Cir. 2006). Nonetheless, given that Yoshino and other prior art references are in the general field, for purposes of this Decision our analysis includes the preamble.

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to Figure 1 of Yoshino, showing packaging substrate and opening 23 and relies on the Guidash Declaration to show that limitation 1b is met. Pet. 15–16 (citing Ex. 1003, 3, Fig. 1 (annotated); Guidash Decl. ¶ 102).

Petitioner’s annotation of Yoshino’s Figure 1, described in section II.D.1. above, is reproduced below.

**Petitioner’s Annotation of Yoshino Figure 1 (Pet. 16)**



Annotated Figure 1 of Yoshino shows that “the package has openings on both end faces thereof, and different opening areas of said openings.” Guidash Decl. ¶ 102; *see* Pet. 16. Dr. Guidash further testifies:

The package (“packaging substrate (20)”) is highlighted in light blue and the through hole (“tapered opening (23)”) is highlighted in green. (Ex. 1003, p. 2). The openings on both end faces, having different opening areas, are indicated with red arrows.

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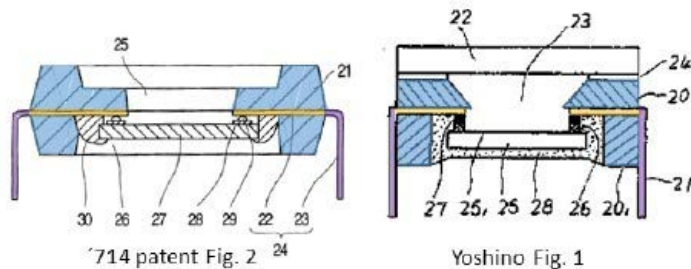
Guidash Decl. ¶ 102.

Limitation 1c recites “a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package.” Petitioner relies on Yoshino’s disclosures that the solid-state image sensor and bonding pads 26 of the solid-state image sensor are aligned with electrode leads. Pet. 16–17 (citing Ex. 1003, 3; Guidash Decl. ¶ 104).

A side-by-side comparison of annotated versions of Figure 2 of the ’714 patent and Figure 1 of Yoshino is reproduced below.

**Annotated Figure 2 of the ’714 Patent and  
Figure 1 of Yoshino (Pet. 17)**

As illustrated above, Petitioner presents ’714 patent Figure 2 beside Yoshino Figure 1, each annotated to



add color, to make a side-by-side comparison of the lead frame of the ’714 patent and Yoshino’s lead frame. Pet. 17. Petitioner argues that “Yoshino teaches the same lead frame **comprising inner leads** (orange) **and outer leads**

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(purple), described in the '714 patent as 'inner lead 22' and 'outer lead 23' of 'lead frame 24.'" *Id.* (citing Ex. 1001, 4:52–53; Guidash Decl. ¶ 105). Petitioner also argues that "Yoshino's lead frame is **sealed in said package** (blue) in the same way as the '714 patent." *Id.* (citing Guidash Decl. ¶ 105).

Limitation 1d recites "a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive." Petitioner relies on the following disclosure from Yoshino to disclose limitation 1d:

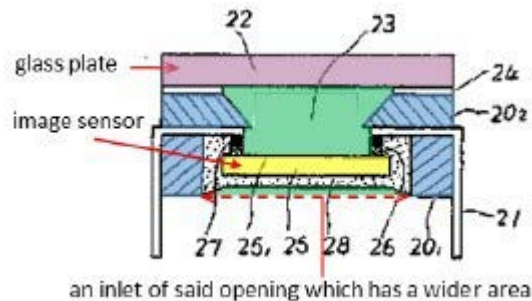
In this solid-state image pickup device, the packaging substrate (20) . . . is constructed . . . and the electrode leads (21) are provided . . . . The **light transmitting glass plate (22) is hermetically secured** to the ceramic molded frame (202) using black fritted glass **beforehand so as to cover the tapered opening (23) of the packaging substrate (20)**. The **solid-state image sensor (25) is placed** so that the bonding pads (26) of the solid-state image sensor (25) are aligned with the electrode leads (21) . . . . [N]o heating is required in the step of **incorporating the solid-state image sensor (25) into the packaging substrate (20)** to which the **light transmitting glass plate (22) has already been hermetically bonded**.

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Pet. 18 (citing Ex. 1003, 3; Guidash Decl. ¶ 107).

Petitioner annotates Figure 1 of Yoshino to demonstrate that limitation 1d is taught by Yoshino. This annotation of Figure 1 is reproduced below.

**Annotation of Figure 1 of Yoshino (Pet. 18)**



Petitioner’s annotation of Yoshino’s Figure 1 shows “the glass plate (highlighted purple) and the image sensor (yellow) inserted into the wider opening of the through hole (green) of the package (blue).” Pet. 18 (citing Guidash Decl. ¶ 107). For that portion of limitation 1d reciting “secured to said package via an adhesive,” Petitioner points to its annotation of Figure 1 as “depict[ing] the bottom opening sealed by an adhesive (‘molded resin (28)’).” *Id.* (citing Ex. 1003, 3; Guidash Decl. ¶ 108).

### 3. Patent Owner’s Arguments and Evidence and Petitioner’s Reply

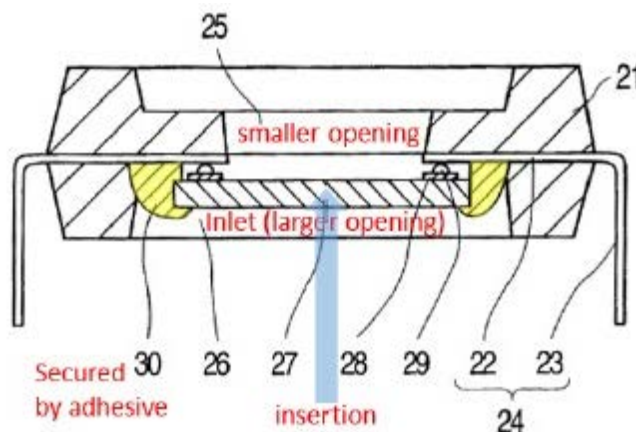
Patent Owner argues the Yoshino does not disclose limitation 1d, i.e., that the image sensing device is

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“inserted from an inlet of said opening which has a wider area” or is “secured to said package via an adhesive.” PO Resp. 19, 21–30. Patent Owner further contends that “no embodiment of Yoshino shows ‘all of the limitations **arranged or combined in the same way** as recited in the claim” and “Yoshino cannot anticipate claim 1 of the ’714 Patent.” *Id.* at 21; *see also id.* at 19–21 (citing *Net MoneyIn*, 545 F.3d at 1371).

Patent Owner’s argument that Yoshino does not disclose limitation 1d’s recitation of “mounted in said package by inserted from an inlet of said opening which has a wider area” starts with an annotation of Figure 2 of the ’714 patent, which is reproduced below.

**Annotation of Figure 2 of ’714 Patent (PO Resp. 22)<sup>19</sup>**



19. This annotation is of the same Figure 2 of the ’714 patent as Petitioner annotated in section II.D.2. above. *See* Pet. 17.



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Patent Owner argues the above annotation of Figure 2 shows that “opening 26 has the wider opening area and opening 25 has the smaller opening area” as recited in limitation 1d. PO Resp. 23. Patent Owner cites to other parts of the Specification of the ’714 patent as showing the “relative area of the openings of its through hole.” *Id.* (citing Ex. 1001, col. 4, ll. 53–58, Fig. 1).

In contrast to the specific disclosure of the ’714 patent, Patent Owner criticizes the “single conclusory sentence” from the Guidash Declaration, which is Petitioner’s basis for alleging Yoshino discloses the “wider area” limitation. *Id.* at 24 (citing Pet. 17–18 (citing Guidash Decl. ¶ 106)). Patent Owner reiterates its position discussed in section II.B. above that the Guidash Declaration should be entitled to no weight. *Id.* Even if given weight, according to Patent Owner, the Guidash Declaration does not address relative areas and does not analyze the openings areas. *Id.* at 25 (citing Guidash Decl. ¶ 106; Afromowitz Decl. ¶ 35). Patent Owner concludes that Mr. Guidash “believes insertion should take place without regard to the relative areas of the openings.” *Id.* (citing Guidash Decl. ¶ 106).

Patent Owner’s position on Petitioner’s annotation of Yoshino’s Figure 1 (Pet. 24) is that it “does not address the opening’s area at all.” PO Resp. 24 (citing Afromowitz Decl. ¶ 34). Furthermore, Patent Owner alleges Yoshino discloses no length dimension, and includes no information on the relative sizes of the through hole. *Id.* at 24–25 (citing Afromowitz Decl. ¶ 34). Patent Owner alleges that Petitioner ultimately relies on inherency or obviousness to show the “wider area” limitation. *Id.* at 25 (citing Pet. 19).

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Patent Owner concludes with the assertion that:

one having ordinary skill in the art would not have found the limitation [1d] inherent, because solid-state image sensor packages are produced in a variety of shapes and configurations, several examples of which are in the petitioner's own references where a cross-section would not necessarily provide information about the area of an opening.

PO Resp. 25–26 (citing Ex. 1016, 5, Fig. 1; Ex. 1024, 4–5, Figs. 2–3; Ex. 1020, Figs. 3 and 5).

Petitioner's Reply begins with its annotation of Figure 1 of Yoshino arguing "Yoshino teaches that the upper, narrower opening is sealed with glass plate 22 *before* the image sensor is inserted, the sensor must be inserted in the lower, wider opening." Pet. Reply 12 (citing Ex. 1003, 3; annotation of Figure 1 of Yoshino reproduced at section II.D.2. above). Petitioner also contends that Patent Owner's position on "wider area" assumes the width dimension of the opening is wider when the claim has no such language. *Id.* at 12–13. Regardless, Petitioner argues Yoshino discloses that "[t]he smallest **area** of the opening (23) formed by this is set to the size that can at least cover the effective photosensitive section of the solid state image sensor (25)." *Id.* at 13 (citing Ex. 1003, 3). Petitioner argues that in order for the sensor to fit into the bottom opening of Yoshino it must "*also* have a greater area than the top opening." *Id.* Thus, Petitioner concludes the evidence and common sense dictate that the opening in which the chip

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or sensor is inserted must be large enough for the chip and the upper opening must be smaller to correspond to the shape of the chip along either axis. *Id.* at 13–14 (citing Ex. 1003, 3–4; Afromowitz Dep., 32:2–6).

Patent Owner’s next argument is that Yoshino does not disclose limitation 1d’s recitation that the image sensing device is “secured to said package via an adhesive.” PO Resp. 27–30. The argument begins with its annotation of Figure 2 of the ’714 patent, reproduced above. *Id.* at 27. Patent Owner argues:

the adhesive 30 highlighted in Figure 1 [2], the image sensing device is glued into place inside the inlet cavity 26. In contrast, Yoshino, does not glue or “secure” the imaging device to the package except in perhaps an unreasonably broad sense.

*Id.* at 28.

Relying on the Afromowitz Declaration, Patent Owner argues Yoshino does not disclose how the sensor is secured. PO Resp. 28 (citing Afromowitz Decl. ¶ 36). Patent Owner also contends “[a] person having ordinary skill in the art would not have understood a molded resin used in this way to constitute an ‘adhesive.’” *Id.* (citing Afromowitz Decl. ¶ 36). Dr. Afromowitz testifies that he has “never heard of molded resin as adhesive” and there are substrate adhesives, which are conductive. Afromowitz Decl. ¶¶ 32, 36; *see also* PO Resp. 29 (citing Ex. 1003, 2, Fig. 2 (“Yoshino itself uses the term ‘secured . . . via conductive adhesive’”)).

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Thus, Patent Owner argues that molded resin is not an “adhesive,” as limitation 1d requires, and that we should use Patent Owner’s claim construction that securing must be by “gluing with an adhesive.” PO Resp. 29. Patent Owner points out that “Yoshino does not glue the imaging device to the package as Yoshino simply fills the molded cavity with resin.” *Id.* (citing Afromowitz Decl. ¶ 32). Patent Owner cites to the Afromowitz Declaration, asserting that “one having ordinary skill in the art would not understand Yoshino’s molded resin to disclose the claimed ‘adhesive.’” *Id.* at 29–30 (citing Afromowitz Decl. ¶ 32). Patent Owner concludes “Yoshino’s Figure 1 does not show ‘all of the limitations arranged or combined in the same way as recited in the claim’ (*Net MoneyIN* at 1371), and Yoshino Figure 1 does not anticipate claim 1 of the ’714 patent.” *Id.* at 30.

Petitioner’s Reply argues “Yoshino’s resin is an adhesive,” pointing out that “Dr. Afromowitz could not define ‘glue’ more specifically than an ‘adhesive substance’ except to say that this would not include a molding process.” Pet. Reply 15 (citing Afromowitz Dep., 67:6–68:17). Petitioner argues “Yoshino’s resin serves to **secure** the image sensor to the package (even if the sensor is *also* held in place by ‘conductive bonding material (27),’ which bonds the sensor’s pads to the lead frame).” *Id.* (citing Ex. 1003, 3). Further, Petitioner argues, if Yoshino’s molded resin was not an adhesive, the sensor would “slip out of place, rendering it unsuitable for ‘supporting’ the sensor.” *Id.* (citing Ex. 1003, 3).

Mr. Guidash testifies that Yoshino’s molded resin functions as an adhesive. Guidash Decl. ¶ 69. Petitioner

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alleges Dr. Afromowitz supports its position when he admits that resins are used in adhesives and “remain adhesive even when used in molds.” Pet. Reply 16 (citing Afromowitz Dep., 53:10–15, 38:2–39:12).

Petitioner questions the credibility of Dr. Afromowitz’s testimony about a person of ordinary skill, pointing to the following testimony and contrasting it with Mr. Guidash’s testimony discussed above. “There’s very little information about [Yoshino’s] molded resin 28. In fact, it just says molded resin 28. And that’s all we know about it.” Pet. Reply 16 (quoting Afromowitz Dep., 76:25–77:3). Petitioner interprets the preceding deposition testimony, as “read[ing] into Yoshino molding processes not taught by Yoshino and speculat[ing] about how one of skill would have understood such processes.” *Id.* at 16–17. Petitioner concludes the more credible testimony is that of Mr. Guidash. *Id.*

#### 4. Analysis and Conclusion

We are persuaded that Petitioner has shown Yoshino anticipates claim 1. We are not persuaded by Patent Owner’s argument, based on *Net MoneyIn*, that Yoshino does not disclose the claim limitations as arranged in the claim. PO Resp. 19–21. Patent Owner does not sufficiently explain how the limitations are arranged in claim 1 and how that arrangement is missing in Yoshino. Patent Owner’s only reference to *Net MoneyIn* is in connection with the “adhesive” limitation, where it states in conclusory fashion that Yoshino does not show “all of the limitations arranged or combined in the same way as recited in the

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claim.” *Id.* at 30. Accordingly, we turn to Patent Owner’s assertion that Yoshino does not disclose the two parts of limitation 1d, “wider area” and “adhesive.” The “wider area” limitation is read in conjunction with limitation 1b, which recites “a package having a through hole therein, opening on both end faces thereof, and *different opening areas of said openings.*”

Patent Owner first argues Yoshino does not disclose the recited “wider area” of limitation 1d. PO Resp. 21–27. In its Response, Patent Owner does not argue that “wider area” should be construed. By contrast, Patent Owner did offer a construction of “adhesive.” *See* section II.A. above. At the final hearing Patent Owner declined to construe the “wider area” term or allege it should be construed. *See* Tr. 31:6–33:15. Patent Owner therefore had an opportunity to argue a construction for “wider area” but did not do so.

We determine that “wider area” has its plain and ordinary meaning, i.e., that the opening “area” is “wider” where the image sensor is inserted. This is consistent with the claim language, which recites that the package has “*different opening areas of said openings*” (1b) and the image sensor is “inserted from an inlet of said opening which has a *wider area*, and *thereby sealing said through hole*” (1d).

As to whether Yoshino discloses the recited “wider area” part of limitation 1d, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Specifically, we have analyzed Yoshino’s Figure 1 and find that, taking into account “the

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common knowledge of technologists,” a person of ordinary skill viewing Yoshino’s Figure 1 would conclude that the bottom opening is wider, i.e., a “wider area,” than the upper opening. *See* Pet. 17–18 (citing Ex. 1003, 2; Guidash Decl. ¶¶ 106–107; annotated Fig. 1 of Yoshino at section II.D.2. above); *see Cont’l Can*, 948 F.2d at 1268–69. The meaning is also consistent with the geometry necessary to seal the image sensor into the package. *See* Pet. 17 (citing Ex. 1003, 3, Fig. 1).

Patent Owner’s annotation of Figure 2 of the ’714 patent is argued as exemplary of the “wider area” term as used in limitation 1d. *See* PO Resp. 22–23; section II.D.3. above. Figure 2 of the ’714 as annotated by both parties is strikingly similar to the annotation of Figure 1 of Yoshino relied on by Petitioner. *See* Pet. 17 (annotated Fig. 2 of the ’714 patent and Fig. 1 of Yoshino at section II.D.2. above). Although Patent Owner’s annotated Figure 2 supports Patent Owner’s argument about the disclosure of relative areas in the ’714 patent, Petitioner’s annotated Figure 1 of Yoshino also discloses relative areas where the bottom opening area is larger in the horizontal plane than the upper opening area because it is “wider.” We specifically find that Figure 1 of Yoshino discloses the bottom opening where the sensor is inserted has a “wider area” than the other “opening area” of the “through hole.” *See* claim 1, limitation 1b (“a package having a *through hole* therein, openings on both end faces thereof, and *different opening areas* of said openings”).

Patent Owner’s arguments regarding “wider area” do not distinguish what is disclosed in Yoshino from the

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claim limitation. *See* Tr. 32:15–20 (“We looked at it as an area period. . . . [W]e thought of wider area and greater area as the same thing . . .”). Neither are we persuaded that the lack of showing on the dimensions of Yoshino’s openings is relevant to the claim language, which makes no mention of dimensions other than in a relative sense, i.e., “wider.” Thus, the Afromowitz Declaration testimony regarding lack of dimensional analysis in the Guidash Declaration is not persuasive. *See* Afromowitz Decl. ¶ 34. We do not find the Guidash Declaration testimony that Yoshino discloses a “wider area” is conclusory, because it relies on disclosure from Yoshino and is illustrated by Petitioner’s annotation of Figure 1 of Yoshino. *See* Guidash Decl. ¶¶ 106–107 (citing Ex. 1003, 2; annotated Fig. 1 of Yoshino, shown at section II.D.2. above). We therefore credit the Guidash Declaration that Yoshino discloses the “wider area” limitation. *Id.*

As to whether Yoshino discloses the recited “adhesive” part of limitation 1d, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. As discussed in section II.A. above, we do not construe “secured via adhesive” to be limited to “gluing.” Thus, Patent Owner’s arguments relying on that construction are rejected for reasons discussed above.

Moreover, we find Dr. Afromowitz’s testimony that “[a] person having ordinary skill in the art would not have understood a molded resin used in this way to constitute an ‘adhesive’” is conclusory. *See* Afromowitz Decl. ¶ 36. Conclusory testimony is not credible or persuasive and, accordingly, we give it little weight. *See* 37 C.F.R.



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§ 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). Indeed, to the extent the Afromowitz Declaration provides an underlying basis, it suggests we give little weight to his testimony. For example, Dr. Afromowitz’s testimony about “glue” amounts to no more than glue is an adhesive and excludes a molding process. Afromowitz Dep., 67:6–68:17; *see also* Pet. Reply 15 (raising other questions about credibility of Dr. Afromowitz’s testimony).

Given his tenure, relevant, and extensive experience in the subject matter area of this proceeding, Mr. Guidash is very qualified to testify regarding photographic image sensors and the packaging thereof and, accordingly, we find his testimony highly credible. *See* Mr. Guidash Curriculum Vitae (Ex. 1026), 1–5. In contrast, since 1974 Dr. Afromowitz’s primary experience is in academia and prior to that his experience was in materials characterization and, therefore, we find his testimony much less credible. *See* Afromowitz Decl. ¶¶ 3–7.

In sum, we credit the Guidash Declaration testimony that “molded resin” is “sometimes used in the fabrication of package bodies that *functions here as an adhesive*.” Guidash Decl. ¶¶ 69, 108 (emphasis added); *see* Pet. 18. Furthermore, the plain and ordinary meaning of adhesive supports Petitioner’s argument, namely that an adhesive tends to adhere.<sup>20</sup> We are persuaded that the molded

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20. THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE, 16 (New College Edition 1979) (Ex. 3001) defines “adhesive” as “tending to adhere; sticky.” *See also* section II.A. above (analyzing Patent Owner’s proposed construction of “adhesive”).

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resin that secures the sensor in Yoshino is an adhesive as claimed. *See* Ex. 1003, 3 (bottom opening of Fig. 1 sealed by molded resin); Guidash Decl. ¶ 108.

Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 1 is anticipated by Yoshino.

**E. Obviousness Grounds**

A patent claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a).

The ultimate determination of obviousness is a question of law, but that determination is based on underlying factual findings . . . . The underlying factual findings include (1) “the scope and content of the prior art,” (2) “differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art,” and (4) the presence of secondary considerations of nonobviousness such “as commercial success, long felt but unsolved needs, failure of others,” and unexpected results.

*In re Nuvasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (citing *inter alia* *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966)).

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“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Furthermore, in assessing the prior art, the Board must consider whether a person of ordinary skill would have been motivated to combine the prior art to achieve the claimed invention. *Nuvasive*, 842 F.3d at 1381. As observed by our reviewing court in *Personal Web Technologies, LLC v. Apple, Inc.*, 848 F.3d 987, 991–992 (Fed. Cir. 2017):

The Supreme Court in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007), explained that, “because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known,” “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”

**1. Person of Ordinary Skill in the Art**

The Guidash Declaration describes the person of ordinary skill in the art at the time as having the following education and experience:

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Bachelor's degree in electrical engineering, physics, or material science and approximately 3–5 years of industrial experience or equivalent research or teaching experience, or a Master's degree in the same fields and 1–3 years of industrial experience or equivalent research or teaching experience. The levels of education, experience and knowledge can trade off against one another.

Guidash Decl. ¶ 53. As discussed in section II.B. above, under the circumstances here, the Guidash Declaration was not improperly incorporated into the Petition and may be referenced to establish the level of ordinary skill in the art. Accordingly, we find the Guidash Declaration, which is supported by the prior art itself, states the level of ordinary skill.

**F. Obviousness of Claim 6 Under § 103(a) Over Yoshino and Izumi (Ground 2)**

Petitioner alleges that independent claim 6 would have been obvious over Yoshino and Izumi. Pet. 19–25. Petitioner supports its position with the Guidash Declaration. *See* Guidash Decl. ¶¶ 115–135. Patent Owner disagrees. PO Resp. 30–36. Patent Owner's position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 37–46.

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### 1. Izumi Overview (Ex. 1016)

Izumi discloses a first embodiment including a package made of ceramic material. Ex. 1016, 4.<sup>21</sup> “Solid state imaging element chip 2 comprises a two dimensional photo sensor.” *Id.* The package has two concave cavities, one to receive the chip and one to receive peripheral circuit chips 3 and 4A–4D. *Id.* at Fig. 1.

Figure 2 is a cross section of a second embodiment of the same structure as the first embodiment differing in that the package is formed of a resin material. Ex. 1016, 5. Figure 2 of Izumi is reproduced below.

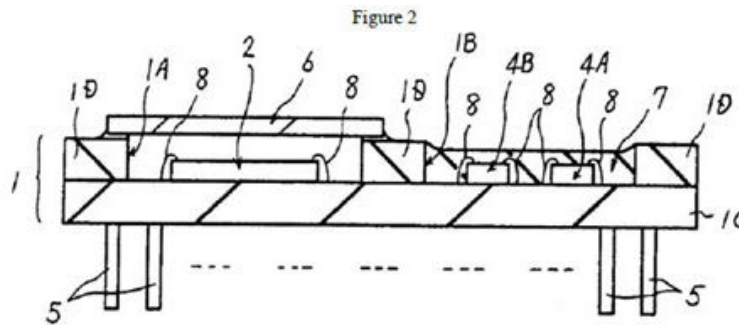


Figure 2 includes base substrate 1C on which chip 2 and peripheral circuit chips 4A and 4B are mounted. *Id.* at 4–5, Fig. 2. Figure 1 shows the other peripheral chips 4C, 4D, and 3 referenced above. *Id.* at 4, Fig. 1.

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21. References are to stamped numbers 002–007, exclusive of “00” and certificate of translation, overlaid on printed numbers 333–338.

*Appendix C***2. Petitioners Arguments and Evidence**

Claim 1 limitations 1a–c are identical to claim 6 limitations 6a–c. *Compare* Ex. 1001, col. 9, ll. 20–25, *with id.* at col. 9, l. 59–col. 10, l. 3. Petitioner cites to the showing made for claim 1 to show limitations 6a–6c. Pet. 20.

Limitation 6d recites “a substrate on which a solid-state image sensing device and a peripheral circuit chip are mounted being inserted into the package from a wider opening thereof.” For the relatively wider opening, Petitioner cites to the showing made for claim 1 and Yoshino. *Id.* (citing Guidash Decl. ¶ 121).

As to the “peripheral circuit chip” recitation in limitation 6d, Petitioner relies on Izumi, asserting that it would have been obvious to mount a solid state sensing device and peripheral circuit chip to a substrate. *Id.* at 21 (citing Ex. 1016, 4–5, Fig. 2; Guidash Decl. ¶ 122). Petitioner argues that in Izumi Figure 2, “the image sensor and peripheral chip are in separate ‘cavity part(s)’ of the package.” *Id.* (citing Ex. 1016, 5; Guidash Decl. ¶ 125). Petitioner argues that claim 6 only requires the image sensor and peripheral circuit to be in the same package, which is taught in Izumi. *Id.* at 21–22 (citing Guidash Decl. ¶ 125).

Petitioner concludes that one of ordinary skill “would have been motivated to use the substrate (and package divider) disclosed in Izumi with Yoshino’s package.” Pet. 21–22 (citing Ex. 1016, 3 (Problems to be Solved); Guidash Decl. ¶ 126). Reasons for the combination of Yoshino and

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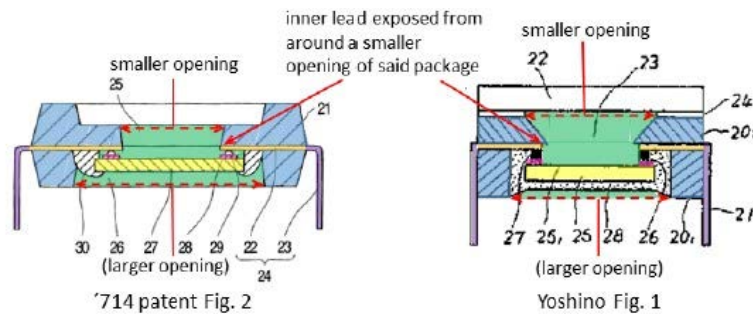
Izumi include that a peripheral chip and image sensor on a common substrate reduces noise, provides a shorter signal path, increases speed, and takes up less space, all of which are desirable in a commercial product. *Id.* at 22 (citing Ex. 1016, 3 (Problems to be Solved); Guidash Decl. ¶ 126). Petitioner contends Izumi provides the advantage of reducing package size over a package with wire bonds, was a known variation to a base system like Yoshino and yields no unexpected results and is therefore obvious under *KSR*, 550 U.S. at 402-03. *Id.* (citing Guidash Decl. ¶ 126).

Limitation 6e recites “an electrode pad of said substrate being connected to said inner lead exposed from around a smaller opening of said package.” Petitioner cites to Yoshino’s “electrode leads” as meeting the “inner lead” language. Pet. 22–23 (citing Ex. 1003, 3; Guidash Decl. ¶ 127). In addition Petitioner argues “Yoshino’s ‘bonding pads (26)’ electrically connect ‘solid-state image sensor (25)’ to the leads, thus they are electrical connection points on a semiconductor device, *i.e.*, electrode pads.” *Id.* at 23 (citing Guidash Decl. ¶ 128).

Concerning the “smaller opening” language, Petitioner compares, as it did in section II.D.2. above, the ’714 patent Figure 2 and Yoshino Figure 1 which are reproduced below.

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**Second Annotated Figure 2 of the '714 Patent and  
Figure 1 of Yoshino (Pet. 23)**



The second annotation of Figure 2 of the '714 patent and Figure 1 of Yoshino, according to Petitioner, shows “Yoshino’s inner lead is **exposed from around a smaller opening of said package** in the same way as in the '714 patent,” like elements highlighted in the same color. Pet. 23 (citing Guidash Decl. ¶ 129). Irrespective of the comparison above, Petitioner concludes the “smaller opening” is shown by Figure 1 of Yoshino. *Id.* (citing Guidash Decl. ¶ 129).

Limitation 6f recites “said substrate being secured to said package via an adhesive.” Petitioner cites to its showing regarding limitation 1d discussed in section II.D.2 above. Pet. 24–25. Petitioner also argues “it would have been obvious to use Izumi’s substrate in place of Yoshino’s image sensor.” *Id.* at 25 (citing Guidash Decl. ¶ 134).

### 3. Patent Owner’s Arguments and Evidence and Petitioner’s Reply

Patent Owner raises very similar arguments to those it made in connection with claim 1, including that



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the Yoshino/Izumi combination do not teach “different opening areas” (6b), “a substrate [with] a solid-state image sensing device and peripheral circuit chip . . . inserted into the package from a wider opening thereof” (6d), and “secured to said package via an adhesive” (6f). *See* PO Resp. 30 (emphasizing certain claim 6 language).

As to limitations 6b and 6d, Patent Owner references arguments it made in connection with claim 1. *Id.* at 30–31 (citing to section V(A)(2), of its Response, pages 21–26). Patent Owner makes specific arguments that a person of ordinary skill in the art would not be motivated to combine Izumi with Yoshino. PO Resp. 31–32 (citing Ex. 1016, Figs. 1, 2; Afromowitz Decl. ¶ 40). Patent Owner points out that the Izumi package has a left-hand cavity for an imaging chip and a right-hand cavity for a peripheral circuit chip. *Id.* at 32–33.

Citing the Afromowitz Declaration, Patent Owner argues that Izumi has several structural differences over Yoshino, the most relevant to the claim being that “Izumi’s substrate is not ‘inserted into the package from a wider opening thereof’ but is attached under the package, and Izumi’s numerous peripheral chips, located in a separate cavity (for which Izumi has several good reasons) provide serious complications.” *Id.* at 33 (citing Afromowitz Decl. ¶¶ 42–43). Thus, based on structural differences requiring “extreme modification” of either Izumi or Yoshino that “[a] person of ordinary skill would not have been motivated to use Izumi’s substrate with Yoshino.” *Id.* at 33–34 (citing Afromowitz Decl. ¶¶ 43, 45). Patent Owner relies on Dr. Afromowitz’s testimony that Izumi’s mounting of the

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image sensor to its substrate would prevent the sensor from being positioned, negating a principal advantage of the '714 patent. *Id.* (citing Afromowitz Decl. ¶ 43).

Patent Owner also argues “[t]he reasons to modify Izumi simply do not exist for the device when considering the actual device.” PO Resp. 35 (citing Afromowitz Decl. ¶ 46). Further, Patent Owner contends the principle of operation would be changed or Izumi would be inoperable for the intended purpose. *Id.*

In its Reply, Petitioner argues that obviousness does not require the references to be physically incorporated. Pet. Reply 17 (citing Guidash Decl. ¶ 133; Guidash Dep. 74:7–75:12; *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . .”))). Petitioner also argues that the modification would not be difficult, as Yoshino shows how to connect its image sensor through a lead frame and locate the pads. *Id.* at 17–18 (citing Pet. 24; Ex. 1003, Fig. 1). Mr. Guidash testifies “a person of ordinary skill would have known to use the existing wiring of Izumi’s substrate to route electrical connections to points where they connect to the leads of Yoshino’s package (rather than routing the connections to points where they connect to Izumi’s leads (5)).” Guidash Decl. ¶ 133.

Petitioner argues Patent Owner’s optical positioning argument is not a part of claim 6. Pet. Reply 18. Furthermore, the substrate in the alleged combination

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is a result of a connection between pads and a lead frame so the entire substrate can be moved within the package for purposes of positioning. *Id.* (citing Pet. 24).

#### **4. Analysis and Conclusion**

Petitioner's arguments and evidence have shown that claim 6 is obvious over Yoshino and Izumi. We are not persuaded by Patent Owner's arguments. To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to the remainder of claim 6, we adopt Petitioner's arguments and evidence in the Petition and its Reply to Patent Owner's Response. As Petitioner notes, physically combining the references is not necessary. Petitioner cites to Izumi only to show the "peripheral circuit chip." *See* Pet. 21. As noted above, we credit the Guidash Declaration testimony over the Afromowitz Declaration testimony because, among other reasons, the declarants' relative experience in the art. As to what would have been known by one of ordinary skill, we credit the Guidash Declaration testimony regarding reasons one of ordinary skill would combine Izumi with Yoshino. Guidash Decl. ¶ 133; *see* Pet. 22.

Petitioner's arguments and evidence have shown by a preponderance of the evidence that claim 6 would have been obvious over Yoshino and Izumi.

#### **G. Obviousness of Claim 7 Under § 103(a) Over Yoshino, Nagano, and Wakabayashi (Ground 3)**

Petitioner alleges that independent claim 7 would have been obvious over Yoshino, Nagano, and Wakabayashi. Pet.

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25–28. Petitioner cites the Guidash Declaration in support of its positions. Guidash Decl. ¶¶ 136–153. Patent Owner disagrees. PO Resp. 36–40. Patent Owner’s position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 47–66.

**1. Nagano Overview (Ex. 1018)**

Nagano discloses a chip having a light-receiving part, which may be circular, and a circuit chip disposed on an upper surface thereof. Ex. 1018 ¶¶ 8, 9. Nagano has a substrate that is provided with electrodes for connection to another circuit. *Id.* ¶ 8.

**2. Wakabayashi Overview (Ex. 1004)**

Wakabayashi discloses a semiconductor image sensor enclosed in a plastic packaging material. Ex. 1004, Abstract.

**3. Petitioner’s Arguments and Evidence**

Similar to the discussion above in connection with claim 6, claim 1 limitations 1a–c are identical to claim 7 limitations 7a–c. Petitioner cites to the showing made for claim 1 to show limitations 7a–7c. Pet. 25.

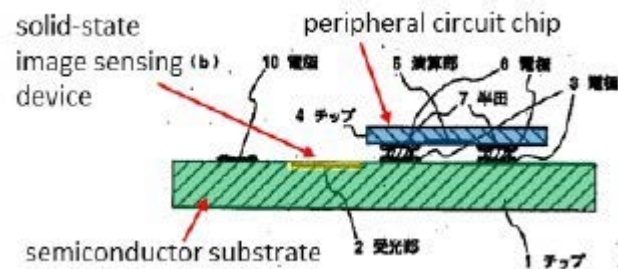
As discussed below, Patent Owner contests the showing made in connection with limitation 7d. Limitation 7d recites “a semiconductor substrate having a solid-state image sensing device and a peripheral circuit chip disposed on an upper surface thereof, said semiconductor

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substrate being inserted into a plastic package via the larger of two openings formed in said package.” Pet. 25.

For its showing of limitation 7d, Petitioner cites, in part, to an annotated version of Nagano Figure 1(b), reproduced below.

**Annotation of Figure 1(b)  
of Nagano-Limitation 7d (Pet. 26)**



Petitioner explains that Figure 1(b) of “Nagano discloses a **semiconductor substrate** (‘chip 1’, highlighted green) **having a solid-state image sensing device** (‘light-receiving part 2’, yellow) **and a peripheral circuit chip** (‘chip 4 having a computing part 5’, blue) **disposed on an upper surface thereof.**” Pet. 26–27 (citing Ex. 1018 ¶ 8, claim 1; Guidash Decl. ¶¶ 146–148). Petitioner argues that the preceding discloses that portion of limitation 7d reciting “a peripheral circuit chip disposed on an upper surface thereof.” *Id.* Petitioner cites its rationale in connection with claim 6 for the reason to combine Yoshino and Nagano. *Id.* at 27 (citing Guidash Decl. ¶ 149).

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Wakabayashi is relied on to show the “plastic package” recitation of limitation 7d. Pet. 26 (citing Ex. 1004, Abstract). Petitioner concludes that using Wakabayashi’s plastic package for the package of Yoshino would be understood by a person of ordinary skill and would have achieved predictable results. *Id.* (citing Guidash Decl. ¶ 145). Patent Owner does not separately contest Wakabayashi as part of the combination.

Limitation 7e recites “an electrode pad of said semiconductor substrate being connected to the inner lead exposed from around the smaller opening of said package.” Petitioner references its showing for limitation 6e above. Pet. 27–28 (citing Guidash Decl. ¶ 150). Petitioner also argues “it would have been obvious to use Nagano’s semiconductor substrate in place of Yoshino’s image sensor.” *Id.* at 28 (citing Guidash Decl. ¶150). Petitioner concludes Nagano’s substrate includes “electrodes 10” serving “the same function as the pads in Yoshino, and it would have been obvious to connect them to the inner leads of Yoshino. *Id.* (citing Ex. 1019 ¶ 8; Guidash Decl. ¶ 151).

Limitation 7f recites “said semiconductor substrate being secured to said package via an adhesive.” Petitioner references its showing in connection with limitation 1d based on Yoshino and its rational for combining Yoshino and Nagano as it argued in connection with limitation 1d. Pet. 28 (citing Guidash Decl. ¶ 152).

*Appendix C***4. Patent Owner's Arguments and Evidence and Petitioner's Reply**

Patent Owner's arguments focus on limitation 7d, reproduced in section II.G.3. above. PO Resp. 36. As to limitations 7b and 7f, Patent Owner references arguments it made in connection with claim 1 limitations 1b and 1d. *Id.* at 36–37. Thus, the issue presented by Patent Owner is the combination of Yoshino and Nagano.

Patent Owner argues Nagano is a photodiode and not a “solid-state image sensing device” as recited in limitation 7d. PO Resp. 37 (citing Afromowitz Decl. ¶¶ 50, 52). Thus, according to Patent Owner, “a person of ordinary skill in the art of image sensor design and manufacture would simply not look to Nagano for prior art teachings.” *Id.* Patent Owner argues Nagano's photodiode or “light-receiving part 2” (*see* Ex. 1018, Fig. 1) should not be considered the claimed “image sensing device” because it is unreasonably broad, beyond our broadest reasonable interpretation standard of construction. *Id.* at 38–39 (citing Ex. 1018 ¶ 8, Figs. 1a. and 1b; Afromowitz Decl. ¶ 62).

Patent Owner also contests Petitioner's rationale and motivation for the combination. PO Resp. 39–40. Patent Owner contends, through Dr. Afromowitz, that the combination would be “nonsensical” because Nagano has no wire bonds to “make use of Yoshino's package device advantageous.” *Id.* at 40 (citing Afromowitz Decl. ¶ 64). The references are “disparate” and there would be no motivation to combine them. *Id.*

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Petitioner responds that, even if a photodiode is not considered the claimed image sensing device, Nagano is cited for its peripheral circuit chip. Pet. Reply 19. Petitioner argues Nagano is in the same field as Yoshino, and is thus analogous art, because both sense and compute incident light and have the same packaging requirements. *Id.* at 20. Citing to the Guidash Declaration, Petitioner adds that motivation is provided by a desire to “reduce the length of electrical connections, reduce noise, and reduce package size.” *Id.* (citing Guidash Decl. ¶ 149; Ex. 1018 ¶ 17 (compact and reduce noise); Ex. 1003, 4 (size reduction goal)).

**5. Analysis and Conclusion**

Petitioner’s arguments and evidence have shown claim 7 would have been obvious over Yoshino, Nagano, and Wakabayashi. We are not persuaded by Patent Owner’s arguments to the contrary. To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to the remainder of claim 6, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. We specifically find that Nagano’s photodiode is analogous art to the image sensing device claimed and taught in Yoshino. Based on his years and quality of experience in the field, we credit the testimony of Mr. Guidash regarding reasons one of ordinary skill would combine Nagano with Yoshino. Guidash Decl. ¶ 149; *see* Pet. 27. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 7 would have been obvious over Yoshino, Nagano, and Wakabayashi.



*Appendix C***H. Obviousness of Claim 8 Under § 103(a) Over Yoshino, Izumi/Nagano, Hirosawa, and Nita (Ground 4)**

Petitioner alleges that claim 8 would have been obvious over Yoshino, Izumi/Nagano, Hirosawa, and Nita. Pet. 28–31. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 154–166. Patent Owner disagrees. PO Resp. 40–45. Patent Owner’s position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 67–77.

**1. Hirosawa Overview (Ex. 1020)**

Hirosawa discloses semiconductor chip 2 on which a light detection semiconductor element and a signal processing circuit element are formed. Ex. 1020, 3, Fig. 1. The components described are mounted in a package having light-shielding film 3.<sup>22</sup> *Id.*

**2. Nita Overview (Ex. 1011)**

Nita discloses a package in which a light receiving section and storage section are mounted on chip 1, and a light shielding section is located above the substrate, on “transparent [glass] lid 4” of “package 2.” Ex. 1011 ¶¶ 15–16.

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22. Petitioner points out that Hirosawa’s Figure 1 labels the shading film “3” while the specification erroneously refers to it as “8.” Pet. 29.

*Appendix C***3. Petitioner's Arguments and Evidence**

Claim 8 depends from claim 6 or claim 7 and recites “a shading film covers an entire upper surface of said substrate except an upper surface of the solid-state image sensing device.” Petitioner relies on its prior assertions Yoshino in view of Izumi for claim 6 and Yoshino and Nagano for claim 7. Pet. 28.

Petitioner argues that Hirosawa's Figure 1 depicts shading film 3 **“on the entire upper surface of the substrate except an upper surface of the solid-state image sensing device, section 2L.”** Pet. 29–30 (citing Ex. 1020, 3, Fig. 1; Guidash Decl. ¶¶ 160–161). Nita, it is argued, discloses that a light receiving section, i.e., the claimed “image sensing device,” and a storage section, i.e., the claimed “peripheral circuit chip,” are mounted on the chip, i.e., the claimed “substrate,” and that the light shielding section is located **“above the substrate, on the ‘transparent glass lid 4’ of ‘package 2.’”** *Id.* at 30 (citing Ex. 1011 ¶¶ 15–16, Figs. 3, 4; Guidash Decl. ¶ 162). Petitioner argues that “[u]sing a light-shading film, such as that of Hirosawa or Nita, over the entire area of the substrate not having the image sensor would have the predictable advantage of protecting the peripheral chip from light (or of minimizing light reaching the peripheral chip that might obtain with partial coverage).” *Id.* (citing Guidash Decl. ¶ 164). In addition, Petitioner notes that with regard to claim 6, where the combination of Yoshino and Izumi is asserted for unpatentability, Izumi describes blocking light by use of “resin sealing material 7.” *Id.* (citing Ex. 1016, 4; Guidash Decl. ¶ 165).

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Petitioner notes that, with respect to base claim 6, “Izumi itself describes blocking light to the peripheral chips by covering the peripheral chip section with resin sealing material 7, thus demonstrating that the function of blocking light to the peripheral chip was common and obvious.” Pet. 30 (citing Ex. 1016, 4; Guidash Decl. ¶ 165). Petitioner concludes that “a person of ordinary skill would have known that a light-shading layer was an equivalent—or additional—way to block light from reaching the peripheral circuitry, and the substitution or additional use of light-shading layer would have been obvious.” *Id.* at 30–31 (citing Guidash Decl. ¶ 165).

**4. Patent Owner’s Arguments and Evidence and Petitioner’s Reply**

Patent Owner first argues that neither Hirosawa nor Nita discloses “a shading film [that] covers an entire upper surface of said substrate except an upper surface of the solid-state image sensing device.” PO Resp. 40–45. Next, Patent Owner argues that Nita’s shading film would not protect against light entering at an angle because of vertical space between the shading film and the substrate. *Id.* at 44–45. Patent Owner then argues that Hirosawa fails to teach this limitation because connection points for leads on substrate 2 are not depicted as shaded. *Id.* at 42. Last, Patent Owner argues that Hirosawa teaches transmission means that might not be covered by the shading film. *Id.* at 41–42.

Petitioner’s Reply argues that Patent Owner does not address the position taken in the Petition that using

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light-shading film over areas other than the image sensor area would have the predictable advantage of “minimizing light reaching the peripheral chip that might obtain with partial coverage.” Pet. Reply 21 (citing Pet. 30–31). Petitioner concludes that Patent Owner’s argument that neither Nita nor Hirosawa teach the limitation of claim 8 alone is irrelevant. *Id.*

Petitioner argues that the space between the shading film and substrate in Nita is depicted is “precisely the arrangement depicted in Fig. 7 of the ’714 patent.” Pet. Reply 22 (comparing Ex. 1011 Fig. 1 and ’714 patent Fig. 7). Petitioner points out that claim 8 recites the light shielding film is on the upper surface and Hirosawa’s bonding pads or transmission means are not on the upper surface, making Patent Owner’s argument irrelevant to the claim. *Id.* at 23.

## **5. Analysis and Conclusion**

Petitioner’s arguments and evidence have shown claim 8 would have been obvious over Yoshino, Izumi/Nagano, Hirosawa, and Nita. We are not persuaded by Patent Owner’s arguments to the contrary. To the extent Patent Owner relies on arguments made in connection with independent claims 6 and 7, we refer to our conclusions there. As to claim 8, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony that applying a shading film was a well-known technique that would have been an obvious step in an image-sensing

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package. Guidash Decl. ¶ 159; *see* Pet. 29. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 8 would have been obvious over Yoshino, Izumi/Nagano, Hirose, and Nita.

**I. Obviousness of Claim 9 Under § 103(a) Over Yoshino and Izumi/Nagano (Ground 5)**

Petitioner alleges that claim 9 would have been obvious over Yoshino and Izumi/Nagano. Pet. 31–32. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 167–174. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

Claim 9 depends from claim 6 or claim 7 and recites “an electrode pad formed on the substrate is connected to the inner lead via a bump.” We have reviewed Petitioner’s arguments and evidence regarding claim 9. Pet. 31–32; Guidash Decl. ¶¶ 168–174.

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 9, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony that, as taught by Yoshino, indium is a metal used in press fit bump-bonding. Guidash Decl. ¶ 170; *see* Pet. 31–32. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 9 would have been obvious over Yoshino and Izumi/Nagano.

*Appendix C***J. Obviousness of Claim 10 Under § 103(a) Over Yoshino, Izumi/Nagano, and Wakabayashi (Ground 6)**

Petitioner alleges that claim 10 would have been obvious over Yoshino, Izumi/Nagano, and Wakabayashi. Pet. 32–34. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 175–180. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

Claim 10 depends from claim 6 or claim 7 and recites “an electrode pad formed on the substrate is connected to the inner lead via an anisotropic conductor which has only vertical conductivity.” We have reviewed Petitioner’s arguments and evidence regarding claim 10. Pet. 32–34; Guidash Decl. ¶¶ 175–180.

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 10, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. We specifically find an anisotropic conductor is one which is conductive only in one direction. Guidash Decl. ¶ 178; *see* Pet. 33. We further find that “Wakabayashi’s conductor has **only vertical conductivity**, because Wakabayashi’s Fig. 2 shows the connection between the sensor and the inner lead made in vertical plane.” Pet. 33 (citing Ex. 1004, Fig. 2; Guidash Decl. ¶ 178). We adopt the rationale for the combination that “an anisotropic conductor allows for a fine pitch—*i.e.*, the connection points on the sensor can be close together, allowing for

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more connection points and/or a reduced footprint.” *Id.* (citing Guidash Decl. ¶ 179). Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 10 would have been obvious over Yoshino, Izumi/Nagano, and Wakabayashi.

**K. Obviousness of Claim 11 Under § 103(a) Over Yoshino, Izumi/Nagano, and Onishi (Ground 7)**

Petitioner alleges that claim 11 would have been obvious over Yoshino, Izumi/Nagano, and Onishi. Pet. 34–35. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶ 181. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

**1. Onishi Overview (Ex. 1014)**

Onishi discloses “imaging equipment” with a transparent portion and conductive patterns connected to an imaging element including a body and a light receiving surface. Ex. 1014 ¶ 7. A space between the body and light-receiving surface is sealed by resin. *Id.* In a “second invention” embodiment, leads extend into this space, allowing the leads to flex so the stress during the hardening of the sealing resin can be absorbed. *Id.* ¶¶ 16–17.

**2. Petitioner’s Arguments and Evidence**

Petitioner alleges that claim 11 would have been obvious over Yoshino, Izumi/Nagano, and Onishi. Pet.

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34–35. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 181–188.

Claim 11 depends from claim 6 or claim 7 and recites “an electrode pad formed on the substrate is connected to the inner lead at an outer portion of said lead, said outer portion of said lead extending into the openings of the package.” We have reviewed Petitioner’s arguments and evidence regarding claim 11. Pet. 34–35; Guidash Decl. ¶¶ 181–188.

Petitioner contends that “it would have been obvious to use Onishi’s extended inner lead with Yoshino’s package, or the package for an image sensor/peripheral chip substrate as rendered obvious by the combination of Yoshino/Izumi or Yoshino/Nagano.” Pet. 34–35 (citing Ex. 1014 ¶¶ 16–17; Guidash Decl. ¶ 187). Petitioner concludes that all that is required would have been to detach the inner lead of Yoshino from the package, allowing the lead to flex. *Id.* (citing Guidash Decl. ¶ 187).

### **3. Analysis and Conclusion**

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 11, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony that “[i]t would have been obvious to use Onishi’s extended inner lead with Yoshino’s package, or the package for an image sensor/peripheral chip substrate as rendered



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obvious by the combination of Yoshino/Izumi or Yoshino/Nagano.” Pet. 35 (citing Guidash Decl. ¶ 187). Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 11 would have been obvious over Yoshino, Izumi/Nagano, and Onishi.

**L. Obviousness of Claim 12 Under § 103(a) Over Yoshino and Tobase (Ground 8)**

Petitioner alleges that independent claim 12 would have been obvious over Yoshino and Tobase. Pet. 35–39. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 189–205. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

**1. Tobase Overview (Ex. 1022)**

Figure 1 of Tobase is reproduced below.

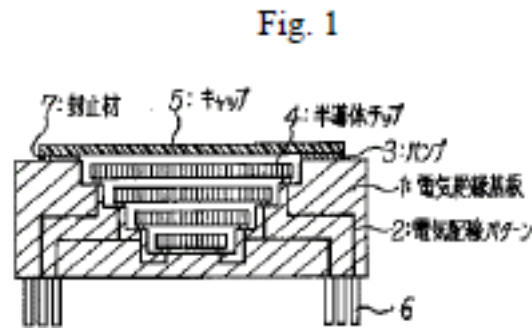


Figure 1 depicts semiconductor chips 4 mounted multi-step-wise in the vertical direction. Ex. 1022 ¶ 9. Bumps

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3 are formed on the steps where semiconductor chips 4 are disposed. *Id.*

## 2. Petitioner’s Arguments and Evidence

Similar to the discussion above in connection with claim 6, claim 1 limitations 1a–c are identical to claim 12 limitations 12a–c. Petitioner cites to the showing made for claim 1 to show limitations 12a–12c. Pet. 35–36. The remaining limitation of claim 12 is 12d, which recites:

a solid-state image sensing device and a peripheral circuit chip both mounted in said package, said solid-state image sensing device being connected to a first inner lead exposed beneath a *first step surface* formed in said package, said solid-state image sensing device being secured to said package via an adhesive, and said peripheral circuit chip being connected to a second inner lead exposed beneath a *second step surface* formed in said package, said peripheral circuit chip being secured to said package via an adhesive.

*Id.* at 36 (emphasis added). Petitioner argues that “Tobase discloses multiple ‘semiconductor chips’ mounted in a package with multiple **step surfaces**.” Pet. 36–37 (citing Ex. 1022 ¶ 9, Fig. 1).

Petitioner’s rationale for the combination is that “[i]t would have been obvious to use Tobase’s step structure in Yoshino’s package” to provide additional

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space savings benefit. Pet. 37–38 (citing Guidash Decl. ¶ 199). Further, Petitioner argues that Tobase suggests such a combination in explaining that “mounting density can be increased and the interconnector path lengths of the electrical interconnectors can be shortened and the signal propagation time thereby shortened, and high-speed operation of the multi-chip module thereby made possible.” *Id.* (citing Ex. 1022 ¶ 18; Guidash Decl. ¶ 199). Other benefits cited by Petitioner include eliminating the need for shading film. *Id.* at 38 (citing Guidash Decl. ¶ 200).

Petitioner also contends that it would have been obvious to make one of the chips of Tobase a peripheral circuit chip such as disclosed by Yoshino’s solid state image sensor. Pet. 38 (citing Guidash Decl. ¶ 202). Further, Petitioner contends that “[i]f Yoshino were modified by using a stepped structure like Tobase’s Fig. 1, the first and second inner leads would be **exposed beneath a first and a second step surface formed in said package.**” *Id.* (citing Guidash Decl. ¶ 203). Petitioner references its showing for step 1d for securing the peripheral chip to the package by an adhesive. *Id.* (citing Guidash Decl. ¶ 203).

### 3. Analysis and Conclusion

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 12, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony cited above. *See* Guidash Decl. ¶ 203. Petitioner’s

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arguments and evidence have shown by a preponderance of the evidence that claim 12 would have been obvious over Yoshino and Tobase.

**M. Obviousness of Claim 13 Under § 103(a) Over Yoshino and Hikosaka (Ground 9)**

Petitioner alleges that independent method claim 13 would have been obvious over Yoshino and Hikosaka. Pet. 39–44. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 206–230. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

**1. Hikosaka Overview (Ex. 1005)**

Hikosaka discloses a process for producing a solid-state image sensing apparatus in which an image sensor is mounted in a through hole via face bonding of the image sensor via bumps. Ex. 1005, 2. Hikosaka’s process includes using a video display and reference marks to position and connect the image sensor. *Id.* at 3–4. An image of a first reference mark captured by the image sensor is aligned with a second reference mark on the screen of the video display. *Id.*

**2. Petitioner’s Arguments and Evidence**

Petitioner argues that Yoshino discloses the elements of method claim 13 that are common to apparatus claim 1. Pet. 39. Petitioner argues that claim 13 adds an additional step of “simultaneously adjusting the optical positioning

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of said solid-state image sensing device,” and alleges that this step is taught by Hikosaka. *Id.* Specifically, Petitioner argues that “[i]t would have been obvious to use Hikosaka’s simultaneous optical positioning to improve the positioning of the image sensor within Yoshino’s package.” *Id.* (citing Guidash Decl. ¶ 206).

### **3. Conclusion**

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 13, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration that the recitations of claim 13 generally and optical positioning specifically are shown in Hikosaka. Guidash Decl. ¶¶ 213–230; *see* Pet. 40–44. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 13 would have been obvious over Yoshino and Hikosaka.

### **N. Obviousness of Claim 15 Under § 103(a) Over Yoshino, Izumi, Nagano, and Hikosaka (Ground 10)**

Petitioner alleges independent method claim 15 would have been obvious over Yoshino, Izumi, Nagano, and Hikosaka. Pet. 44–47. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 231–240. Patent Owner disagrees based on its arguments and evidence relating to claim 1. PO Resp. 45–46.

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Petitioner argues that Yoshino, Izumi, Nagano, and Hikosaka as applied to prior claim elements and steps disclose the steps of claim 15. For example, step 15b recites “mounting said solid-state image sensing device and said peripheral circuit chip on a substrate where a group of wirings is disposed in order to connect the solid-state image sensing device and the peripheral circuit chip to the group of wirings.” Petitioner cites to its showing on Yoshino relative to step 13a and the showing relating to Izumi for step 6d. Pet. 44–45 (citing Guidash Decl. ¶ 232).

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 15, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration that “one of ordinary skill would have been motivated to use Izumi’s substrate in place of Yoshino’s image sensor” in this claim. Guidash Decl. ¶ 237; *see* Pet. 46. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 15 would have been obvious over Yoshino, Izumi, Nagano and Hikosaka.

**O. Obviousness of Claim 16 Under § 103(a) Over Yoshino, Tobase, and Hikosaka (Ground 11)**

Petitioner alleges that independent method claim 16 would have been obvious over Yoshino, Tobase, and Hikosaka. Pet. 47–49. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 241–251. Patent Owner disagrees based on its

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arguments and evidence relating to claim 1. PO Resp. 45–46.

Petitioner argues that Yoshino, Tobase, and Hikosaka as applied to prior claim elements and steps disclose the steps of claim 16. For example, step 16b recites “inserting said solid-state image sensing device into the through hole.” Petitioner cites to its showing on Yoshino relative to element 1d. Pet. 48 (citing Guidash Decl. ¶ 243).

To the extent Patent Owner relies on arguments made in connection with claim 1, we refer to our conclusion there. As to claim 16, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration as cited above in connection with Petitioner’s assertions regarding claim 16. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim would have been obvious over Yoshino, Tobase, and Hikosaka.

**P. Obviousness of Claim 1 Under § 103(a) Over Wakabayashi (Ground 12)**

Petitioner alleges that independent claim 1 would have been obvious over Wakabayashi. Pet. 49–53. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 252–266. Patent Owner disagrees. PO Resp. 46–51. Patent Owner’s position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 78–91.

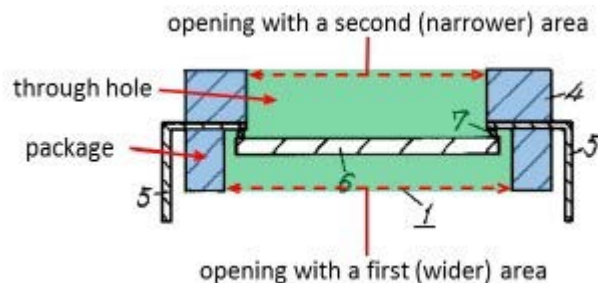
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### 1. Petitioner's Arguments and Evidence

Limitation 1a in the Petition, recites “[a] solid-state image sensing apparatus.” Petitioner argues Wakabayashi teaches a solid-state image sensing apparatus as a “solid-state image pickup device” with a “CCD chip.” Pet. 50 (citing Ex. 1004 ¶ 1; Guidash Decl. ¶ 253).

Limitation 1b recites “a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings.” Petitioner points to Figure 1 of Wakabayashi, showing a package with openings on both end faces thereof, and different opening areas of said openings. Pet. 50–51 (citing Ex. 1004, Abstract, ¶ 5; Guidash Decl. ¶ 255). Petitioner's annotation of Figure 1 is reproduced below.

#### Petitioner's Annotation of Wakabayashi Figure 1 (Pet. 51)



Annotated Figure 1 shows the narrower and wider openings (in red dotted line) and “the through hole is shown in green, the package body in blue.” *Id.* at 51.



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Limitation 1c recites “a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package.” *Id.* at 51. Wakabayashi teaches that “[t]he solid-state image pickup device according [to] the invention has . . . a **package . . . interposing a lead frame** and having, in its interior, a space for disposing a CDD chip, the **inner lead sections of the lead frame** being exposed to the space.” Ex. 1004 ¶ 5. Petitioner relies on the preceding disclosure and paragraph 10 of Wakabayashi, which describes leads 5 (shown in annotated Figure 1 above), to show limitation 1c. Pet. 51 (citing Ex. 1004 ¶¶ 5, 10; Guidash Decl. ¶¶ 256–257).

Limitation 1d recites “a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.” *Id.* at 51–52. To show limitation 1d, Petitioner relies on Wakabayashi’s disclosure that “[t]he solid-state image pickup device according the invention has the basic construction of comprising a CCD chip joined via bumps to the inner lead sections of a package.” *Id.* at 52 (citing Ex. 1004 ¶ 5; Guidash Decl. ¶ 258). Petitioner acknowledges that “Wakabayashi does not expressly disclose that the image sensor is mounted **by being inserted from an inlet of said opening which has a wider area,**” but asserts this would have been obvious. *Id.* (citing Guidash Decl. ¶ 259). Petitioner explains, among other arguments, that the wider opening would be seen by the person of ordinary skill as the most predictable result for achieving success. *Id.* (citing Guidash Decl. ¶ 260).

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As to that part of limitation 1d requiring that “said solid-state image sensing device being secured to said package via an adhesive,” Petitioner cites to Wakabayashi’s disclosure that the “basic structure discussed above, the back face side of the chip is further **sealed with an adhesive resin 7.**”<sup>23</sup> *Id.* at 53.

## 2. Patent Owner’s Arguments and Evidence and Petitioner’s Reply

Patent Owner argues that “like Yoshino this ground under Wakabayashi fails for the same reasons as Ground 1 with respect to claim 1.” PO Resp. 46. Patent Owner argues the “wider area” limitation is missing from Wakabayashi. *Id.* at 45–51. Patent Owner also argues the “secured via an adhesive” limitation is missing from Wakabayashi, based on its construction of the term as limited to being secured by glue. *Id.* at 50–51.

Petitioner counters Patent Owner’s argument on “wider area” as being based on “an implicit construction of ‘wider area’ as ‘greater area.’” Pet. Reply 25. Petitioner argues “claim 1 only requires that the bottom opening through which the image sensor is inserted have a larger *width* than the upper opening, as demonstrated in Fig. 1 of Wakabayashi.” *Id.* Petitioner relies on the Guidash Declaration testimony that “it would have been obvious to insert the image sensor through the opening

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23. Petitioner persuades us that Wakabayashi uses “7” when “9” is correct, as shown in Figure 2 of Wakabayashi. *See* Pet. 53 (citing Guidash Decl. ¶ 268).

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shown as wider in Fig. 1 of Wakabayashi.” *Id.* at 24–25 (citing Guidash Decl. ¶¶ 259–260; annotation of Fig. 1 of Wakabayashi).

As to the secured via an adhesive limitation, Petitioner argues Patent Owner’s construction limiting the term to gluing is wrong. Pet. Reply 25–27. As such, Wakabayashi’s teaching of a resin sealing the sensor into the package meets the “adhesive” limitation. *Id.* at 26 (citing Ex. 1004 ¶ 16, Fig. 2; Guidash Decl. ¶¶ 262–265).

### 3. Conclusion

To the extent Patent Owner relies on arguments made in connection with ground 1 (anticipation by Yoshino) for claim 1, we refer to our conclusion there. In addition, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony cited above. Specifically, we credit the Guidash Declaration testimony over that of the Afromowitz Declaration testimony for reasons previously discussed. As Mr. Guidash explained, “it would have been obvious to insert the image sensor through the opening shown as wider in Fig. 1 of Wakabayashi.” *See* Pet. Reply 24 (citing Guidash Decl. ¶¶ 259–260). Further, Patent Owner’s arguments with respect to the secured via an adhesive limitation are premised on a claim construction that we did not adopt, as discussed in section II.A. above. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 1 would have been obvious over Wakabayashi.

*Appendix C***Q. Obviousness of Claims 2–4 Under § 103(a) Over Wakabayashi and Fujii (Ground 13)**

Petitioner alleges that independent claim 2 would have been obvious over Wakabayashi and Fujii. Pet. 53–57. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 267–284. Patent Owner disagrees. PO Resp. 52–53. Patent Owner’s position is supported by the Afromowitz Declaration. Afromowitz Decl. ¶¶ 92–95.

**1. Fujii Overview (Ex. 1024)**

Fujii discloses a package for a solid-state image sensing device. Ex. 1024, Abstract. The package features a “ledge” projecting into its interior space that serves to hold the package’s transparent lid. *Id.* at Fig. 4; *see also* Pet. 54 (citing annotation of Fujii Fig. 4 with “ledge” in yellow (reproduced below, section II.Q.2.)); Guidash Decl. ¶¶ 272–273).

**2. Petitioner’s Arguments and Evidence – Claim 2**

Petitioner cites to its prior showings that claim 1 would have been obvious over Wakabayashi to meet elements 2a, 2c, 2d, and 2e. Pet. 54–57 (citing Guidash Decl. ¶¶ 270, 279–283). The remaining issue raised by Patent Owner below is whether limitation 2b is shown by Wakabayashi.

Limitation 2b recites:

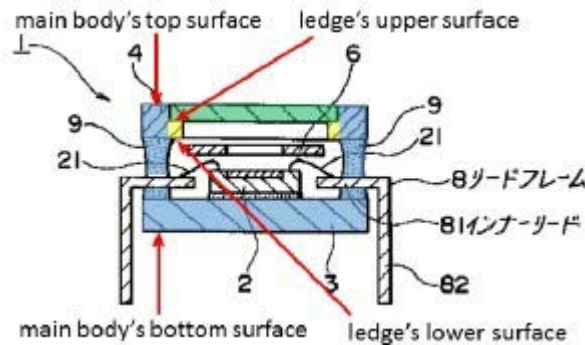
a package comprising a main body having a through hole therein, said main body having a

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top surface and a bottom surface, said package further comprising a ledge formed on said main body so as to extend inwardly toward the center of said through hole, said ledge comprising an upper surface and a lower surface.

*Id.* at 54. Petitioner relies on the disclosure of Figure 4 of Fujii. Petitioner’s annotation of Figure 4 is reproduced below.

**Petitioner’s Annotation of Fujii Figure 4 (Pet. 54)**



Petitioner’s annotation of Fujii’s Figure 4 depicts Fujii’s package in blue **“having a top surface and a bottom surface and a ledge (yellow) formed on said main body so as to extend inwardly toward the center of the package.”** Pet. 54–55 (citing Guidash Decl. ¶¶ 272–275). Petitioner argues that Fujii has a ledge that holds transparent cap 5, highlighted in green.<sup>24</sup> *Id.*

24. Petitioner persuades us that the number “5” was omitted from Figure 4. Pet. 54–55 (citing Ex. 1024 ¶ 10; Guidash Decl. ¶¶ 276–277).

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Petitioner concludes “[i]t would have been obvious to use Fujii’s ledge in Wakabayashi’s package, such that the ledge extends inwardly toward the center of said through hole, as illustrated below using Wakabayashi’s Fig. 2.” *Id.* at 55 (citing Guidash Decl. ¶¶ 276–277).

**3. Petitioner’s Arguments and Evidence – Claims 3 and 4**

Petitioner alleges that claims 3 and 4, each of which depends from claim 2, would have been obvious over Wakabayashi and Fujii. Pet. 57–58. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 285–288.

**4. Patent Owner’s Arguments and Evidence**

Patent Owner argues that “Petitioner gives no reason to combine Fujii’s ledge with Wakabayashi’s package in this manner.” PO Resp. 53 (citing Afromowitz Decl. ¶ 95).

**5. Conclusion**

To the extent Patent Owner relies on arguments made in connection with claim 1 regarding Wakabayashi, we refer to our conclusion there. In addition, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony cited above. Specifically, we credit the Guidash testimony over that of the Afromowitz Declaration testimony. As Mr. Guidash

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explained, “[o]ne of ordinary skill would have known to extend the edge of Wakabayashi’s package upward in order to hold Wakabayashi’s transparent lid (‘sealing glass’ 8), creating the ledge disclosed in Fujii.” *See* Pet. 55 (citing Guidash Decl. ¶ 276). Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 2 would have been obvious over Wakabayashi and Fujii.

**R. Obviousness of Claim 5 Under § 103(a) Over Wakabayashi, Fujii, and Onishi (Ground 14)**

Petitioner alleges that claim 5, which depends from claim 2, would have been obvious over Wakabayashi, Fujii, and Onishi. Pet. 58. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 289–292. Patent Owner does not separately argue claim 5 beyond its arguments on claim 2, discussed at section II.Q.4. above.

To the extent Patent Owner relies on arguments made in connection with claim 1 regarding Wakabayashi, we refer to our conclusion there. In addition, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony cited above. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 5 would have been obvious over Wakabayashi, Fujii, and Onishi.

*Appendix C***S. Obviousness of Claim 13 Under § 103(a) Over Wakabayashi and Hikosaka (Ground 15)**

Petitioner alleges that independent method claim 13 would have been obvious over Wakabayashi and Hikosaka. Pet. 58–60. Petitioner cites the Guidash Declaration in support of its positions. *See* Guidash Decl. ¶¶ 293–302. Patent Owner disagrees based on its arguments discussed in section II.P. above, regarding obviousness of claim 1 over Wakabayashi. PO Resp. 54.

To the extent Patent Owner relies on arguments made in connection with claim 1 regarding Wakabayashi, we refer to our conclusion there. In addition, we adopt Petitioner’s arguments and evidence in the Petition and its Reply to Patent Owner’s Response. Based on his years and quality of experience in the field, we credit the Guidash Declaration testimony cited above. Petitioner’s arguments and evidence have shown by a preponderance of the evidence that claim 13 would have been obvious over Wakabayashi and Hikosaka.

**III. ORDER**

For the reasons given, it is:

ORDERED that claims 1–13, 15, and 16 of U.S. Patent No. 5,952,714 have been shown by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking



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judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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**APPENDIX D — RELEVANT  
STATUTORY PROVISIONS**

**35 U.S.C. § 301  
CITATION OF PRIOR ART  
AND WRITTEN STATEMENTS**

**(a) In general.** Any person at any time may cite to the Office in writing—

(1) prior art consisting of patents or printed publications which that person believes to have a bearing on the patentability of any claim of a particular patent; or

(2) statements of the patent owner filed in a proceeding before a Federal court or the Office in which the patent owner took a position on the scope of any claim of a particular patent.

**(b) Official file.** If the person citing prior art or written statements pursuant to subsection (a) explains in writing the pertinence and manner of applying the prior art or written statements to at least 1 claim of the patent, the citation of the prior art or written statements and the explanation thereof shall become a part of the official file of the patent.

**(c) Additional information.** A party that submits a written statement pursuant to subsection (a)(2) shall include any other documents, pleadings, or evidence from the proceeding in which the statement was filed that addresses the written statement.

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**(d) Limitations.** A written statement submitted pursuant to subsection (a)(2), and additional information submitted pursuant to subsection (c), shall not be considered by the Office for any purpose other than to determine the proper meaning of a patent claim in a proceeding that is ordered or instituted pursuant to section 304, 314, or 324 [35 U.S.C.S. § 304, 314, or 324]. If any such written statement or additional information is subject to an applicable protective order, such statement or information shall be redacted to exclude information that is subject to that order.

**(e) Confidentiality.** Upon the written request of the person citing prior art or written statements pursuant to subsection (a), that person's identity shall be excluded from the patent file and kept confidential.

*Appendix D***35 U.S.C. § 302  
REQUEST FOR REEXAMINATION**

Any person at any time may file a request for reexamination by the Office of any claim of a patent on the basis of any prior art cited under the provisions of section 301 [35 U.S.C.S. § 301]. The request must be in writing and must be accompanied by payment of a reexamination fee established by the Director pursuant to the provisions of section 41 [35 U.S.C.S. § 41]. The request must set forth the pertinency and manner of applying cited prior art to every claim for which reexamination is requested. Unless the requesting person is the owner of the patent, the Director promptly will send a copy of the request to the owner of record of the patent.

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**35 U.S.C. § 303**

**DETERMINATION OF ISSUE BY DIRECTOR**

(a) Within three months following the filing of a request for reexamination under the provisions of section 302 [35 U.S.C.S. § 302], the Director will determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request, with or without consideration of other patents or printed publications. On his own initiative, and any time, the Director may determine whether a substantial new question of patentability is raised by patents and publications discovered by him or cited under the provisions of section 301 or 302 [35 U.S.C.S. § 301 or 302]. The existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office.

(b) A record of the Director's determination under subsection (a) of this section will be placed in the official file of the patent, and a copy promptly will be given or mailed to the owner of record of the patent and to the person requesting reexamination, if any.

(c) A determination by the Director pursuant to subsection (a) of this section that no substantial new question of patentability has been raised will be final and nonappealable. Upon such a determination, the Director may refund a portion of the reexamination fee required under section 302 [35 U.S.C.S. § 302].

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**35 U.S.C. § 304**

**REEXAMINATION ORDER BY DIRECTOR**

If, in a determination made under the provisions of subsection 303(a) [35 U.S.C.S. § 303(a)], the Director finds that a substantial new question of patentability affecting any claim of a patent is raised, the determination will include an order for reexamination of the patent for resolution of the question. The patent owner will be given a reasonable period, not less than two months from the date a copy of the determination is given or mailed to him, within which he may file a statement on such question, including any amendment to his patent and new claim or claims he may wish to propose, for consideration in the reexamination. If the patent owner files such a statement, he promptly will serve a copy of it on the person who has requested reexamination under the provisions of section 302 [35 U.S.C.S. § 302]. Within a period of two months from the date of service, that person may file and have considered in the reexamination a reply to any statement filed by the patent owner. That person promptly will serve on the patent owner a copy of any reply filed.

*Appendix D***35 U.S.C. § 305****CONDUCT OF REEXAMINATION PROCEEDINGS**

After the times for filing the statement and reply provided for by section 304 [35 U.S.C.S. § 304] have expired, reexamination will be conducted according to the procedures established for initial examination under the provisions of sections 132 and 133 [35 U.S.C.S. §§ 132 and 133]. In any reexamination proceeding under this chapter [35 U.S.C.S. §§ 301 *et seq.*], the patent owner will be permitted to propose any amendment to his patent and a new claim or claims thereto, in order to distinguish the invention as claimed from the prior art cited under the provisions of section 301 [35 U.S.C.S. § 301], or in response to a decision adverse to the patentability of a claim of a patent. No proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding under this chapter [35 U.S.C.S. §§ 301 *et seq.*]. All reexamination proceedings under this section, including any appeal to the Patent Trial and Appeal Board, will be conducted with special dispatch within the Office.

*Appendix D***35 U.S.C. § 306  
APPEAL**

The patent owner involved in a reexamination proceeding under this chapter [35 U.S.C.S. §§ 301 *et seq.*] may appeal under the provisions of section 134 [35 U.S.C.S. § 134], and may seek court review under the provisions of sections 141 to 144 [35 U.S.C.S. §§ 141–144], with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent.



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**35 U.S.C. § 307  
CERTIFICATE OF PATENTABILITY,  
UNPATENTABILITY, AND CLAIM  
CANCELLATION**

(a) In a reexamination proceeding under this chapter [35 U.S.C.S. §§ 301 *et seq.*], when the time for appeal has expired or any appeal proceeding has terminated, the Director will issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent any proposed amended or new claim determined to be patentable.

(b) Any proposed amended or new claim determined to be patentable and incorporated into a patent following a reexamination proceeding will have the same effect as that specified in section 252 [35 U.S.C.S. § 252] for reissued patents on the right of any person who made, purchased, or used within the United States, or imported into the United States, anything patented by such proposed amended or new claim, or who made substantial preparation for the same, prior to issuance of a certificate under the provisions of subsection (a) of this section.

*Appendix D***35 U.S.C. § 311  
INTER PARTES REVIEW**

(a) **In general.** Subject to the provisions of this chapter [35 U.S.C.S. §§ 311 *et seq.*], a person who is not the owner of a patent may file with the Office a petition to institute an *inter partes* review of the patent. The Director shall establish, by regulation, fees to be paid by the person requesting the review, in such amounts as the Director determines to be reasonable, considering the aggregate costs of the review.

(b) **Scope.** A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 [35 U.S.C.S. § 102 or 103] and only on the basis of prior art consisting of patents or printed publications.

(c) **Filing deadline.** A petition for *inter partes* review shall be filed after the later of either—

(1) the date that is 9 months after the grant of a patent;  
or

(2) if a post-grant review is instituted under chapter 32 [35 U.S.C.S. §§ 321 *et seq.*], the date of the termination of such post-grant review.

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**35 U.S.C. § 312  
PETITIONS**

**(a) Requirements of petition.** A petition filed under section 311 [35 U.S.C.S. § 311] may be considered only if—

(1) the petition is accompanied by payment of the fee established by the Director under section 311 [35 U.S.C.S. § 311];

(2) the petition identifies all real parties in interest;

(3) the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim, including—

(A) copies of patents and printed publications that the petitioner relies upon in support of the petition; and

(B) affidavits or declarations of supporting evidence and opinions, if the petitioner relies on expert opinions;

(4) the petition provides such other information as the Director may require by regulation; and

(5) the petitioner provides copies of any of the documents required under paragraphs (2), (3), and (4) to the patent owner or, if applicable, the designated representative of the patent owner.

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**(b) Public availability.** As soon as practicable after the receipt of a petition under section 311 [35 U.S.C.S. § 311], the Director shall make the petition available to the public.

*Appendix D***35 U.S.C. § 313****PRELIMINARY RESPONSE TO PETITION**

If an *inter partes* review petition is filed under section 311 [35 U.S.C.S. § 311], the patent owner shall have the right to file a preliminary response to the petition, within a time period set by the Director, that sets forth reasons why no *inter partes* review should be instituted based upon the failure of the petition to meet any requirement of this chapter [35 U.S.C.S. §§ 311 *et seq.*].

*Appendix D***35 U.S.C. § 314**  
**INSTITUTION OF *INTER PARTES* REVIEW**

(a) **Threshold.** The Director may not authorize an *inter partes* review to be instituted unless the Director determines that the information presented in the petition filed under section 311 [35 U.S.C.S. § 311] and any response filed under section 313 [35 U.S.C.S. § 313] shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

(b) **Timing.** The Director shall determine whether to institute an *inter partes* review under this chapter [35 U.S.C.S. §§ 311 *et seq.*] pursuant to a petition filed under section 311 [35 U.S.C.S. § 311] within 3 months after—

(1) receiving a preliminary response to the petition under section 313 [35 U.S.C.S. § 313]; or

(2) if no such preliminary response is filed, the last date on which such response may be filed.

(c) **Notice.** The Director shall notify the petitioner and patent owner, in writing, of the Director's determination under subsection (a), and shall make such notice available to the public as soon as is practicable. Such notice shall include the date on which the review shall commence.

(d) **No appeal.** The determination by the Director whether to institute an *inter partes* review under this section shall be final and nonappealable.

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**35 U.S.C. § 315  
RELATION TO OTHER PROCEEDINGS  
OR ACTIONS**

**(a) Infringer’s civil action.**

**(1) *Inter partes* review barred by civil action.** An *inter partes* review may not be instituted if, before the date on which the petition for such a review is filed, the petitioner or real party in interest filed a civil action challenging the validity of a claim of the patent.

**(2) Stay of civil action.** If the petitioner or real party in interest files a civil action challenging the validity of a claim of the patent on or after the date on which the petitioner files a petition for *inter partes* review of the patent, that civil action shall be automatically stayed until either—

(A) the patent owner moves the court to lift the stay;

(B) the patent owner files a civil action or counterclaim alleging that the petitioner or real party in interest has infringed the patent; or

(C) the petitioner or real party in interest moves the court to dismiss the civil action.

**(3) Treatment of counterclaim.** A counterclaim challenging the validity of a claim of a patent does not constitute a civil action challenging the validity of a claim of a patent for purposes of this subsection.

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**(b) Patent owner's action.** An *inter partes* review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent. The time limitation set forth in the preceding sentence shall not apply to a request for joinder under subsection (c).

**(c) Joinder.** If the Director institutes an *inter partes* review, the Director, in his or her discretion, may join as a party to that *inter partes* review any person who properly files a petition under section 311 [35 U.S.C.S. § 311] that the Director, after receiving a preliminary response under section 313 [35 U.S.C.S. § 313] or the expiration of the time for filing such a response, determines warrants the institution of an *inter partes* review under section 314 [35 U.S.C.S. § 314].

**(d) Multiple proceedings.** Notwithstanding sections 135(a), 251, and 252, and chapter 30 [35 U.S.C.S. §§ 135(a), 251, 252, and 301 *et seq.*], during the pendency of an *inter partes* review, if another proceeding or matter involving the patent is before the Office, the Director may determine the manner in which the *inter partes* review or other proceeding or matter may proceed, including providing for stay, transfer, consolidation, or termination of any such matter or proceeding.



*Appendix D***(e) Estoppel.**

**(1) Proceedings before the Office.** The petitioner in an *inter partes* review of a claim in a patent under this chapter [35 U.S.C.S. §§ 311 *et seq.*] that results in a final written decision under section 318(a) [35 U.S.C.S. § 318(a)], or the real party in interest or privy of the petitioner, may not request or maintain a proceeding before the Office with respect to that claim on any ground that the petitioner raised or reasonably could have raised during that *inter partes* review.

**(2) Civil actions and other proceedings.** The petitioner in an *inter partes* review of a claim in a patent under this chapter [35 U.S.C.S. §§ 311 *et seq.*] that results in a final written decision under section 318(a) [35 U.S.C.S. § 318(a)], or the real party in interest or privy of the petitioner, may not assert either in a civil action arising in whole or in part under section 1338 of title 28 or in a proceeding before the International Trade Commission under section 337 of the Tariff Act of 1930 [19 U.S.C.S. § 1337] that the claim is invalid on any ground that the petitioner raised or reasonably could have raised during that *inter partes* review.

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**35 U.S.C. § 316**

**CONDUCT OF *INTER PARTES* REVIEW**

**(a) Regulations.** The Director shall prescribe regulations—

(1) providing that the file of any proceeding under this chapter [35 U.S.C.S. §§ 311 et seq.] shall be made available to the public, except that any petition or document filed with the intent that it be sealed shall, if accompanied by a motion to seal, be treated as sealed pending the outcome of the ruling on the motion;

(2) setting forth the standards for the showing of sufficient grounds to institute a review under section 314(a) [35 U.S.C.S. § 314(a)];

(3) establishing procedures for the submission of supplemental information after the petition is filed;

(4) establishing and governing inter partes review under this chapter [35 U.S.C.S. §§ 311 et seq.] and the relationship of such review to other proceedings under this title;

(5) setting forth standards and procedures for discovery of relevant evidence, including that such discovery shall be limited to—

(A) the deposition of witnesses submitting affidavits or declarations; and

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(B) what is otherwise necessary in the interest of justice;

(6) prescribing sanctions for abuse of discovery, abuse of process, or any other improper use of the proceeding, such as to harass or to cause unnecessary delay or an unnecessary increase in the cost of the proceeding;

(7) providing for protective orders governing the exchange and submission of confidential information;

(8) providing for the filing by the patent owner of a response to the petition under section 313 [35 U.S.C.S. § 313] after an inter partes review has been instituted, and requiring that the patent owner file with such response, through affidavits or declarations, any additional factual evidence and expert opinions on which the patent owner relies in support of the response;

(9) setting forth standards and procedures for allowing the patent owner to move to amend the patent under subsection (d) to cancel a challenged claim or propose a reasonable number of substitute claims, and ensuring that any information submitted by the patent owner in support of any amendment entered under subsection (d) is made available to the public as part of the prosecution history of the patent;

(10) providing either party with the right to an oral hearing as part of the proceeding;

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(11) requiring that the final determination in an inter partes review be issued not later than 1 year after the date on which the Director notices the institution of a review under this chapter [35 U.S.C.S. §§ 311 *et seq.*], except that the Director may, for good cause shown, extend the 1-year period by not more than 6 months, and may adjust the time periods in this paragraph in the case of joinder under section 315(c) [35 U.S.C.S. § 315(c)];

(12) setting a time period for requesting joinder under section 315(c) [35 U.S.C.S. § 315(c)]; and

(13) providing the petitioner with at least 1 opportunity to file written comments within a time period established by the Director.

**(b) Considerations.** In prescribing regulations under this section, the Director shall consider the effect of any such regulation on the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings instituted under this chapter [35 U.S.C.S. §§ 311 *et seq.*].

**(c) Patent Trial and Appeal Board.** The Patent Trial and Appeal Board shall, in accordance with section 6 [35 U.S.C.S. § 6], conduct each *inter partes* review instituted under this chapter [35 U.S.C.S. §§ 311 *et seq.*].

**(d) Amendment of the patent.**

**(1) In general.** During an inter partes review instituted under this chapter [35 U.S.C.S. §§ 311 *et*

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*seq.*], the patent owner may file 1 motion to amend the patent in 1 or more of the following ways:

(A) Cancel any challenged patent claim.

(B) For each challenged claim, propose a reasonable number of substitute claims.

(2) **Additional motions.** Additional motions to amend may be permitted upon the joint request of the petitioner and the patent owner to materially advance the settlement of a proceeding under section 317 [35 U.S.C.S. § 317], or as permitted by regulations prescribed by the Director.

(3) **Scope of claims.** An amendment under this subsection may not enlarge the scope of the claims of the patent or introduce new matter.

(e) **Evidentiary standards.** In an *inter partes* review instituted under this chapter [35 U.S.C.S. §§ 311 *et seq.*], the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.

*Appendix D***35 U.S.C. § 317  
SETTLEMENT**

(a) **In general.** An *inter partes* review instituted under this chapter [35 U.S.C.S. §§ 311 *et seq.*] shall be terminated with respect to any petitioner upon the joint request of the petitioner and the patent owner, unless the Office has decided the merits of the proceeding before the request for termination is filed. If the *inter partes* review is terminated with respect to a petitioner under this section, no estoppel under section 315(e) [35 U.S.C.S. § 315(e)] shall attach to the petitioner, or to the real party in interest or privy of the petitioner, on the basis of that petitioner's institution of that *inter partes* review. If no petitioner remains in the *inter partes* review, the Office may terminate the review or proceed to a final written decision under section 318(a) [35 U.S.C.S. § 318(a)].

(b) **Agreements in writing.** Any agreement or understanding between the patent owner and a petitioner, including any collateral agreements referred to in such agreement or understanding, made in connection with, or in contemplation of, the termination of an *inter partes* review under this section shall be in writing and a true copy of such agreement or understanding shall be filed in the Office before the termination of the *inter partes* review as between the parties. At the request of a party to the proceeding, the agreement or understanding shall be treated as business confidential information, shall be kept separate from the file of the involved patents, and shall be made available only to Federal Government agencies on written request, or to any person on a showing of good cause.

*Appendix D***35 U.S.C. § 318  
DECISION OF THE BOARD**

**(a) Final written decision.** If an *inter partes* review is instituted and not dismissed under this chapter [35 U.S.C.S. §§ 311 *et seq.*], the Patent Trial and Appeal Board shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d) [35 U.S.C.S. § 316(d)].

**(b) Certificate.** If the Patent Trial and Appeal Board issues a final written decision under subsection (a) and the time for appeal has expired or any appeal has terminated, the Director shall issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent by operation of the certificate any new or amended claim determined to be patentable.

**(c) Intervening rights.** Any proposed amended or new claim determined to be patentable and incorporated into a patent following an *inter partes* review under this chapter [35 U.S.C.S. §§ 311 *et seq.*] shall have the same effect as that specified in section 252 [35 U.S.C.S. § 252] for reissued patents on the right of any person who made, purchased, or used within the United States, or imported into the United States, anything patented by such proposed amended or new claim, or who made substantial preparation therefor, before the issuance of a certificate under subsection (b).

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**(d) Data on length of review.** The Office shall make available to the public data describing the length of time between the institution of, and the issuance of a final written decision under subsection (a) for, each *inter partes* review.



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**35 U.S.C. § 319  
APPEAL**

A party dissatisfied with the final written decision of the Patent Trial and Appeal Board under section 318(a) [35 U.S.C.S. § 318(a)] may appeal the decision pursuant to sections 141 through 144 [35 U.S.C.S. §§ 141–144]. Any party to the *inter partes* review shall have the right to be a party to the appeal.

**APPENDIX E — EXCERPTS FROM AMERICAN  
INVENTORS PROTECTION ACT OF 1999**

**SUBTITLE F—OPTIONAL *INTER PARTES*  
REEXAMINATION PROCEDURE**

**SEC. 4601. SHORT TITLE.**

This subtitle may be cited as the “Optional *inter partes* Reexamination Procedure Act of 1999”.

**SEC. 4602. *EX PARTE* REEXAMINATION OF  
PATENTS.**

The chapter heading for chapter 30 of title 35, United States Code, is amended by inserting “***EX PARTE***” before “**REEXAMINATION OF PATENTS**”.

**SEC. 4603. DEFINITIONS.**

Section 100 of title 35, United States Code, is amended by adding at the end the following new subsection:

“(e) The term ‘third-party requester’ means a person requesting *ex parte* reexamination under section 302 or *inter partes* reexamination under section 311 who is not the patent owner.”.

**SEC. 4604. OPTIONAL *INTER PARTES*  
REEXAMINATION PROCEDURES.**

(a) **IN GENERAL.**—Part 3 of title 35, United States Code, is amended by adding after chapter 30 the following new chapter:

*Appendix E***“CHAPTER 31—OPTIONAL *INTER PARTES*  
REEXAMINATION PROCEDURES****“§ 311. Request for *inter partes* reexamination**

“(a) IN GENERAL.—Any person at any time may file a request for *inter partes* reexamination by the Office of a patent on the basis of any prior art cited under the provisions of section 301.

“(b) REQUIREMENTS.—The request shall—

“(1) be in writing, include the identity of the real party in interest, and be accompanied by payment of an *Inter partes* reexamination fee established by the Director under section 41; and

“(2) set forth the pertinency and manner of applying cited prior art to every claim for which reexamination is requested.

“(c) COPY.—Unless the requesting person is the owner of the patent, the Director promptly shall send a copy of the request to the owner of record of the patent.

**“§ 312. Determination of issue by Director**

“(a) REEXAMINATION.—Not later than 3 months after the filing of a request for *inter partes* reexamination under section 311, the Director shall determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request,

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with or without consideration of other patents or printed publications. On the Director's initiative, and at any time, the Director may determine whether a substantial new question of patentability is raised by patents and publications.

“(b) RECORD.—A record of the Director's determination under subsection (a) shall be placed in the official file of the patent, and a copy shall be promptly given or mailed to the owner of record of the patent and to the third-party requester, if any.

“(c) FINAL DECISION.—A determination by the Director under subsection (a) shall be final and non-appealable. Upon a determination that no substantial new question of patentability has been raised, the Director may refund a portion of the *inter partes* reexamination fee required under section 311.

**“§ 313. *Inter partes* reexamination order by Director**

“If, in a determination made under section 312(a), the Director finds that a substantial new question of patentability affecting a claim of a patent is raised, the determination shall include an order for *inter partes* reexamination of the patent for resolution of the question. The order may be accompanied by the initial action of the Patent and Trademark Office on the merits of the *inter partes* reexamination conducted in accordance with section 314.

*Appendix E***“§ 314. Conduct of *inter partes* reexamination proceedings**

“(a) IN GENERAL.—Except as otherwise provided in this section, reexamination shall be conducted according to the procedures established for initial examination under the provisions of sections 132 and 133. In any *inter partes* reexamination proceeding under this chapter, the patent owner shall be permitted to propose any amendment to the patent and a new claim or claims, except that no proposed amended or new claim enlarging the scope of the claims of the patent shall be permitted.

“(b) RESPONSE.—(1) This subsection shall apply to any *inter partes* reexamination proceeding in which the order for *inter partes* reexamination is based upon a request by a third-party requester.

“(2) With the exception of the *inter partes* reexamination request, any document filed by either the patent owner or the third-party requester shall be served on the other party. In addition, the third-party requester shall receive a copy of any communication sent by the Office to the patent owner concerning the patent subject to the *inter partes* reexamination proceeding.

“(3) Each time that the patent owner files a response to an action on the merits from the Patent and Trademark Office, the third-party requester shall have one opportunity to file written comments addressing issues raised by the action of the Office or the patent owner’s response thereto, if those written comments

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are received by the Office within 30 days after the date of service of the patent owner's response.

“(c) SPECIAL DISPATCH.—Unless otherwise provided by the Director for good cause, all *inter partes* reexamination proceedings under this section, including any appeal to the Board of Patent Appeals and Interferences, shall be conducted with special dispatch within the Office.

**“§ 315. Appeal**

“(a) PATENT OWNER.—The patent owner involved in an *inter partes* reexamination proceeding under this chapter—

“(1) may appeal under the provisions of section 134 and may appeal under the provisions of sections 141 through 144, with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent; and

“(2) may be a party to any appeal taken by a third-party requester under subsection (b).

“(b) THIRD-PARTY REQUESTER.—A third-party requester may—

“(1) appeal under the provisions of section 134 with respect to any final decision favorable to the patentability of any original or proposed amended or new claim of the patent; or

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“(2) be a party to any appeal taken by the patent owner under the provisions of section 134, subject to subsection (c).

“(c) CIVIL ACTION.—A third-party requester whose request for an *inter partes* reexamination results in an order under section 313 is estopped from asserting at a later time, in any civil action arising in whole or in part under section 1338 of title 28, United States Code, the invalidity of any claim finally determined to be valid and patentable on any ground which the third-party requester raised or could have raised during the *inter partes* reexamination proceedings. This subsection does not prevent the assertion of invalidity based on newly discovered prior art unavailable to the third-party requester and the Patent and Trademark Office at the time of the *inter partes* reexamination proceedings.

**“§ 316. Certificate of patentability, unpatentability, and claim cancellation**

“(a) IN GENERAL.—In an *inter partes* reexamination proceeding under this chapter, when the time for appeal has expired or any appeal proceeding has terminated, the Director shall issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent any proposed amended or new claim determined to be patentable.

“(b) AMENDED OR NEW CLAIM.—Any proposed amended or new claim determined to be patentable and incorporated

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into a patent following an *inter partes* reexamination proceeding shall have the same effect as that specified in section 252 of this title for reissued patents on the right of any person who made, purchased, or used within the United States, or imported into the United States, anything patented by such proposed amended or new claim, or who made substantial preparation therefor, prior to issuance of a certificate under the provisions of subsection (a) of this section.

**“§ 317. *Inter partes* reexamination prohibited**

“(a) ORDER FOR REEXAMINATION.—Notwithstanding any provision of this chapter, once an order for *inter partes* reexamination of a patent has been issued under section 313, neither the patent owner nor the third-party requester, if any, nor privies of either, may file a subsequent request for *inter partes* reexamination of the patent until an *inter partes* reexamination certificate is issued and published under section 316, unless authorized by the Director.

“(b) FINAL DECISION.—Once a final decision has been entered against a party in a civil action arising in whole or in part under section 1338 of title 28, United States Code, that the party has not sustained its burden of proving the invalidity of any patent claim in suit or if a final decision in an *inter partes* reexamination proceeding instituted by a third-party requester is favorable to the patentability of any original or proposed amended or new claim of the patent, then neither that party nor its privies may thereafter request an *inter partes* reexamination of



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any such patent claim on the basis of issues which that party or its privies raised or could have raised in such civil action or *inter partes* reexamination proceeding, and an *inter partes* reexamination requested by that party or its privies on the basis of such issues may not thereafter be maintained by the Office, notwithstanding any other provision of this chapter. This subsection does not prevent the assertion of invalidity based on newly discovered prior art unavailable to the third-party requester and the Patent and Trademark Office at the time of the *inter partes* reexamination proceedings.

**“§ 318. Stay of litigation**

“Once an order for *inter partes* reexamination of a patent has been issued under section 313, the patent owner may obtain a stay of any pending litigation which involves an issue of patentability of any claims of the patent which are the subject of the *inter partes* reexamination order, unless the court before which such litigation is pending determines that a stay would not serve the interests of justice.”.

(b) CONFORMING AMENDMENT.—The table of chapters for part III of title 25, United States Code, is amended by striking the item relating to chapter 30 and inserting the following:

<b>“30. Prior Art Citations to Office and Ex Parte Reexamination of Patents .....</b>	<b>301</b>
<b>“31. Optional <i>inter partes</i> Reexamination of Patents .....</b>	<b>311.”</b>

*Appendix E***SEC. 4605. CONFORMING AMENDMENTS.**

(a) **PATENT FEES; PATENT SEARCH SYSTEMS.**—Section 41(a)(7) of title 35, United States Code, is amended to read as follows:

“(7) On filing each petition for the revival of an unintentionally abandoned application for a patent, for the unintentionally delayed payment of the fee for issuing each patent, or for an unintentionally delayed response by the patent owner in any reexamination proceeding, \$1,210, unless the petition is filed under section 133 or 151 of this title, in which case the fee shall be \$110.”.

(b) **APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES.**—Section 134 of title 35, United States Code, is amended to read as follows:

**“§ 134. Appeal to the Board of Patent Appeals and Interferences**

“(a) **PATENT APPLICANT.**—An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the administrative patent judge to the Board of Patent Appeals and Interferences, having once paid the fee for such appeal.

“(b) **Patent Owner.**—A patent owner in any reexamination proceeding may appeal from the final rejection of any claim by the administrative patent judge to the Board of Patent Appeals and Interferences, having once paid the fee for such appeal.

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“(c) **THIRD-PARTY.**—A third-party requester in an *inter partes* proceeding may appeal to the Board of Patent Appeals and Interferences from the final decision of the administrative patent judge favorable to the patentability of any original or proposed amended or new claim of a patent, having once paid the fee for such appeal. The third-party requester may not appeal the decision of the Board of Patent Appeals and Interferences.”.

(c) **APPEAL TO COURT OF APPEALS FOR THE FEDERAL CIRCUIT.**—Section 141 of title 35, United States Code, is amended by adding the following after the second sentence: “A patent owner in any reexamination proceeding dissatisfied with the final decision in an appeal to the Board of Patent Appeals and Interferences under section 134 may appeal the decision only to the United States Court of Appeals for the Federal Circuit.”.

(d) **PROCEEDINGS ON APPEAL.**—Section 143 of title 35, United States Code, is amended by amending the third sentence to read as follows: “In any reexamination case, the Director shall submit to the court in writing the grounds for the decision of the Patent and Trademark Office, addressing all the issues involved in the appeal.”.

(e) **CIVIL ACTION TO OBTAIN PATENT.**—Section 145 of title 35, United States Code, is amended in the first sentence by inserting “(a)” after “section 134”.

**SEC. 4606. REPORT TO CONGRESS.**

Not later than 5 years after the date of the enactment of this Act, the Under Secretary of Commerce for Intellectual

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Property and Director of the United States Patent and Trademark Office shall submit to the Congress a report evaluating whether the *inter partes* reexamination proceedings established under the amendments made by this subtitle are inequitable to any of the parties in interest and, if so, the report shall contain recommendations for changes to the amendments made by this subtitle to remove such inequity.

**SEC. 4607. ESTOPPEL EFFECT OF REEXAMINATION.**

Any party who requests an *inter partes* reexamination under section 311 of title 35, United States Code, is estopped from challenging at a later time, in any civil action, any fact determined during the process of such reexamination, except with respect to a fact determination later proved to be erroneous based on information unavailable at the time of the *inter partes* reexamination decision. If this section is held to be unenforceable, the enforceability of the remainder of this subtitle or of this title shall not be denied as a result.

**SEC. 4608. EFFECTIVE DATE.**

(a) IN GENERAL.—Subject to subsection (b), this subtitle and the amendments made by this subtitle shall take effect on the date of the enactment of this Act and shall apply to any patent that issues from an original application filed in the United States on or after that date.

(b) SECTION 4605(a).—The amendments made by section 4605(a) shall take effect on the date that is 1 year after the date of the enactment of this Act.

**APPENDIX F — PUBLIC LAW 107-273—  
NOV. 2, 2002**

116 STAT. 1900

PUBLIC LAW 107-273—NOV. 2, 2002

**SEC. 13106. APPEALS IN INTER PARTES  
REEXAMINATION PROCEEDINGS.**

(a) APPEALS BY THIRD-PARTY REQUESTER IN PROCEEDINGS.—Section 315(b) of title 35, United States Code, is amended to read as follows:

“(b) THIRD-PARTY REQUESTER.—A third-party requester—

“(1) may appeal under the provisions of section 134, and may appeal under the provisions of sections 141 through 144, with respect to any final decision favorable to the patentability of any original or proposed amended or new claim of the patent; and

“(2) may, subject to subsection (c), be a party to any appeal taken by the patent owner under the provisions of section 134 or sections 141 through 144.”.

(b) APPEAL TO BOARD OF PATENT APPEALS AND INTERFERENCES.—Section 134(c) of title 35, United States Code, is amended by striking the last sentence.

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(c) APPEAL TO COURT OF APPEALS FOR THE FEDERAL CIRCUIT.—Section 141 of title 35, United States Code, is amended in the third sentence by inserting “, or a third-party requester in an inter partes reexamination proceeding, who is” after “patent owner”.

(d) EFFECTIVE DATE.—The amendments made by this section apply with respect to any reexamination proceeding commenced on or after the date of enactment of this Act.

**Subtitle B—Intellectual Property and High  
Technology Technical Amendments**

**SEC. 13201. SHORT TITLE.**

This subtitle may be cited as the “Intellectual Property and High Technology Technical Amendments Act of 2002”.

**SEC. 13202. CLARIFICATION OF  
REEXAMINATION PROCEDURE ACT OF  
1999; TECHNICAL AMENDMENTS.**

(a) OPTIONAL INTER PARTES REEXAMINATION PROCEDURES.— Title 35, United States Code, is amended as follows:

(1) Section 311 is amended—

(A) in subsection (a), by striking “person” and inserting “third-party requester”; and

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(B) in subsection (c), by striking “Unless the requesting person is the owner of the patent, the” and inserting “The”.

(2) Section 312 is amended—

(A) in subsection (a), by striking the second sentence; and

(B) in subsection (b), by striking “, if any”.

(3) Section 314(b)(1) is amended—

(A) by striking “(1) This” and all that follows through “(2)” and inserting “(1)”;

(B) by striking “the third-party requester shall receive a copy” and inserting “the Office shall send to the third-party requester a copy”; and

(C) by redesignating paragraph (3) as paragraph (2).

(4) Section 315(c) is amended by striking “United States Code,”.

(5) Section 317 is amended—

(A) in subsection (a), by striking “patent owner nor the third-party requester, if any, nor privies of either” and inserting “third-party requester nor its privies”; and

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(B) in subsection (b), by striking “United States Code,”.

(b) CONFORMING AMENDMENTS.—

(1) APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES.—Subsections (a), (b), and (c) of section 134 of title 35, United States Code, are each amended by striking “administrative patent judge” each place it appears and inserting “primary examiner”.

(2) PROCEEDING ON APPEAL.—Section 143 of title 35, United States Code, is amended by amending the third sentence to read as follows: “In an ex parte case or any reexamination case, the Director shall submit to the court in writing the grounds for the decision of the Patent and Trademark Office, addressing all the issues involved in the appeal. The court shall, before hearing an appeal, give notice of the time and place of the hearing to the Director and the parties in the appeal.”.

(c) CLERICAL AMENDMENTS.—

(1) Section 4604(a) of the Intellectual Property and Communications Omnibus Reform Act of 1999, as enacted by section 1000(a)(9) of Public Law 106–113, is amended by striking “Part 3” and inserting “Part III”.



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(2) Section 4604(b) of that Act is amended by striking “title 25” and inserting “title 35”.

(d) EFFECTIVE DATE.—The amendments made by section 4605 (b), (c), and (e) of the Intellectual Property and Communications Omnibus Reform Act, as enacted by section 1000(a)(9) of Public Law 106–113, shall apply to any reexamination filed in the United States Patent and Trademark Office on or after the date of enactment of Public Law 106–113.