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NOTE

INTER PARTES REVIEW, THE BROADEST
REASONABLE INTERPRETATION, AND THE TAKINGS
CLAUSE[†]

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I. INTRODUCTION

The passage of the Leahy-Smith America Invents Act (“AIA”) on September 16, 2011 created a sea change in American patent law.¹ The AIA was intended to address a wide range of issues that affected the patent system, and enacted sweeping changes in the way patents are issued and litigated. One of these changes was the creation of a pair of new proceedings at the United States Patent and Trademark Office (“PTO”), the post-grant review (“PGR”) and Inter Partes Review (“IPR”).² The procedures are meant to be low-cost alternatives to litigating the validity of an issued patent in federal court.³ The PTO was granted authority to promulgate regulations that specify how these proceedings would function.⁴ The regulations declared that the standard of claim construction used in the proceedings would be the broadest reasonable interpretation standard.⁵ This standard differs from the one used in litigation, which attempts to give a claim its true meaning in light of a range of factors, including other portions of the patent and the state of the art involved.⁶

1. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.).

2. *Id.* § 6, 125 Stat. at 299-313 (codified at 35 U.S.C. §§ 311-319, 321-329).

3. *See* 152 Cong. Rec. S952 (daily ed. Feb. 28, 2011) (statement of Sen. Grassley).

4. *See* 35 U.S.C. § 316(a) (2012).

5. 37 C.F.R. § 42.100(b) (2016).

6. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (describing the process a court must undertake to decide on the “ordinary meaning” of a claim).

This note analyzes the question of whether the use of the broadest reasonable interpretation in IPRs is a violation of the Takings Clause of the Fifth Amendment of the United States Constitution. Some brief background on IPRs and the importance of the use of the broadest reasonable interpretation is described in Part I of this note. Part II describes the operation of the regulation that results in a potential takings challenge. Part III applies the Takings Clause to the use of the broadest reasonable interpretation in IPRs and argues that the regulation constitutes a taking.

II. INTER PARTES REVIEW AND THE BROADEST REASONABLE INTERPRETATION

A. Inter Partes Review

Prior to the passage of the AIA in 2012, the PTO was mainly involved in issuing patents. Although so called post-grant proceedings did exist prior to the AIA, they were limited in scope and were not substitutes for litigating the validity of a patent in federal court.⁷ Patent litigation can be complex and costly, and the issue of validity can be especially challenging to judges and lawyers who are dealing with technological inventions that are difficult to understand.⁸ The AIA sought to ameliorate this problem by introducing two new post-grant proceedings at the PTO aimed at challenging the validity of a patent: the PGR and the IPR.⁹

A PGR differs from an IPR by only being available in the first nine months after a patent has issued and including a broader range of issues that can invalidate the patent.¹⁰ The majority of

7. These proceedings were inter partes reexamination, reissue, and ex parte reexamination. Inter partes reexamination was rarely used and was eliminated by the AIA. *See Leahy-Smith America Invents Act*, § 6, 125 Stat. at 299–305 (codified at 35 U.S.C. §§ 311–319). Reissue is a corrective proceeding initiated by the patent owner to fix certain kinds of errors in the patent. 35 U.S.C. § 209 (2012). Ex parte reexamination is a proceeding that can invalidate a patent, *see* 35 U.S.C. § 307 (2012), but it is a one-sided procedure that is equivalent to the initial patent examination; it is typically used by patent owners to strengthen their patents prior to litigation.

8. Some studies have put the litigation cost of the average one to twenty five million dollar patent dispute at nearly three million dollars. *See* Chris Neumeyer, *Managing Costs of Patent Litigation*, IPWATCHDOG (Feb. 5, 2013), <http://www.ipwatchdog.com/2013/02/05/managing-costs-of-patent-litigation/id=34808/>.

9. *See Leahy-Smith America Invents Act*, § 6, 125 Stat. at 299–313 (codified at 35 U.S.C. §§ 311–319, 321–329).

10. *See* 35 U.S.C. § 321 (2012).

post-grant proceedings' filings at the PTO are IPRs,¹¹ and PGR shares the broadest reasonable interpretation standard with the IPR,¹² so the analysis presented in this note will refer to the IPR, with the understanding that it applies to the PGR as well.

The theory behind the creation of the IPR is to put the decision of validity of a patent in the hands of the PTO, the agency that decides on the validity of patents on a daily basis. The proceedings take place in front of the Patent Trial and Appeal Board ("PTAB"),¹³ which is an administrative appellate body within the PTO staffed with administrative law judges.¹⁴ The IPR is an adversarial process similar to litigation in court, but it is meant to be simpler and lower in cost. Thus, regulations require that it be finished in one year under normal circumstances.¹⁵ Pursuant to authority granted to it by the AIA, the PTO sets the standard of claim construction in an IPR to the broadest reasonable interpretation.¹⁶

B. Claim Construction Standards

Claim construction is an important part of patent litigation. A claim is a technical term of art for a specific sentence in a patent. The claim is what legally sets out the invention that is being covered in a patent, and each patent may have many claims that are variations on the same invention.¹⁷ Each claim is an independent invention, and is treated separately from the other claims. Thus, it often happens that some claims of a patent are found invalid while others remain. The first step in any suit for patent infringement is determining what exactly is covered by the patent, a process known as claim construction.

11. U.S. PATENT AND TRADEMARK OFFICE, PATENT TRIAL AND APPEAL BOARD STATISTICS 2-3 (Nov. 30, 2015), <http://www.uspto.gov/sites/default/files/documents/2015-11-30%20PTAB.pdf> [hereinafter PTO STATISTICS] (showing that over 90% of proceedings at the PTO in FY2015 were IPRs and less than 1% of the remainder were PGRs).

12. 37 C.F.R. § 42.200(b) (2016).

13. 35 U.S.C. § 316(c) (2012).

14. *See id.* § 6(a).

15. 37 C.F.R. § 42.100(c) (2016).

16. *See id.* C.F.R. § 42.100(b); *see also* 35 U.S.C. § 316 (2012) (requiring the Director of the PTO to promulgate regulations relating to the conduct of IPRs).

17. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (describing the concept of claims legally defining the scope of a patent as a "bedrock principle" of patent law).

Claim construction is also critical for patent validity, as the claimed invention is what is compared to the knowledge of the technological field prior to invention. One of the requirements for issuing a patent is that any invention be novel, which is to say that the invention must not be found in any references that date before the patent application was filed.¹⁸ A reference is a technical term for something that can act to invalidate a patent claim; for purposes of this note it can be understood as a newspaper article, sale, or other public event that describes the invention.¹⁹

Claims are single sentences that can only contain a certain amount of detail while remaining coherent. Thus, a claim may describe a part of an invention being made out of plastic, without describing the type of plastic.²⁰ The type of plastic that the claim covers is very important in deciding what other products infringe on the claim, or what references cover the patent. When dealing with interpretation of claims, there are two different standards used in patent law: the broadest reasonable interpretation and the standard used in litigation in federal court.

1. The Broadest Reasonable Interpretation

The broadest reasonable interpretation is a standard that has been applied by the PTO and its predecessors for over 100 years.²¹ The standard requires the claim to be constructed as broadly as possible while still being consistent with the language in the claim and other sections of the patent.²² This broad interpretation ensures that an application is given the most scrutiny possible prior

18. See 35 U.S.C. § 102 (2012). Prior to the passage of the AIA, the important date for references was the date of invention, not filing. This date still applies to patents that were issued or pending prior to the date the AIA went into force: March 16, 2013.

19. See *generally id.* U.S.C. § 102(a) (describing references that may be used in the examination of novelty).

20. “A screwdriver comprising a plastic handle and a metal shaft with a first end and a second end; wherein the first end tapers to a flat point and the second end is attached to the handle.” This is a simple example of a claim for a flat head screwdriver.

21. See *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1276 (Fed. Cir. 2015), *aff’d sub nom.* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016) (discussing the historical use of the broadest reasonable interpretation at the PTO and its predecessor agencies, and court approval of the same dating back to at least 1906).

22. See U.S. PATENT AND TRADEMARK OFFICE, *MANUAL OF PATENT EXAMINING PROCEDURE* § 2111 (9th ed. 2015) (describing the use of the broadest reasonable interpretation during patent examination).

to becoming a patent, as a broad claim interpretation will include more references than a narrow one. This standard served the public interest “by reducing the possibility that claims . . . will be given broader scope than is justified.”²³

2. The Litigation Standard

The standard used by the federal courts in litigation differs from the standard used by the PTO in its proceedings. A recent authoritative case decided by the Federal Circuit, *Phillips v. AWH Corp.*, described claim construction as reading the claim and giving the words their “ordinary and customary meaning.”²⁴ This plain meaning of the claim is the meaning that a person of ordinary skill in the technological field of the claim would assign to the claim at the time of the invention.²⁵ This means that a court attempts to give a claim an interpretation that corresponds to its true meaning as understood by someone who works with the technology at the time of the invention. Courts are authorized to look not just at the claim language, but at the rest of the patent document, the history of the patent application at the PTO, and other sources, such as technical dictionaries.²⁶

The difference between the court standard and the standard used at the PTO is justified in a few ways. First, the PTO has a duty to the public to ensure that any grant of a patent, which amounts to a legal monopoly on the invention, is confined to the true invention. Reading a claim broadly makes it more likely to include references that would disqualify it, thus making it harder for a patent owner to receive a patent.

Second, once a patent is issued, it is covered by a statutory presumption of validity.²⁷ This justifies the creation of a narrower standard of claim construction that is more patent friendly. In fact, the Federal Circuit has held that claims should be construed to

23. See *In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984) (holding that the broadest reasonable interpretation is the appropriate standard for use in *ex parte* reexamination proceedings).

24. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (2005).

25. See *id.*

26. See *id.* at 1314. Courts tend to favor what is termed intrinsic evidence, which is evidence found in the patent document or the history of the patent application, while extrinsic evidence, like technical dictionaries or expert evidence, is viewed as a less desirable source of interpretive assistance. *Id.* at 1317.

27. See 35 U.S.C. § 282(a) (2012) (stating that “[a] patent . . . shall be presumed valid” and placing the burden of proving invalidity on the party challenging the patent).

sustain their validity if possible.²⁸ Finally, the Federal Circuit has held that the broadest reasonable interpretation is appropriate in situations where the patent owner may amend their claims to maintain their validity, which is the case in most proceedings at the PTO.²⁹

III. THE TAKINGS PROBLEM

The Fifth Amendment of the United States Constitution says in part “nor shall private property be taken for public use, without just compensation.”³⁰ This clause, known as the Takings Clause, has created a line of jurisprudence that requires that the government pay compensation to private parties when it takes their property if certain conditions are met.

An issue with the newly created IPR proceeding at the PTO is that it is a procedure that is meant to be a substitute for litigating the validity of a patent, but it uses a very different standard of claim construction. In addition, the proceeding can be initiated by anyone, except the patent owner, who can articulate a reason why a claim in the patent may be invalid.³¹ The result is that IPRs have been overwhelmingly decided in favor of the petitioner. The latest statistics from the PTO show that of 675 IPRs that have been completed as of October 2015, 584 have resulted in at least one claim being held invalid.³² Thus, the argument is that the structure of an IPR, particularly its use of the broadest reasonable interpretation, amounts to a de facto taking of the patent owner’s property, namely the patent.

28. See *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999) (discussing the origins of the rule of construing claims to sustain their validity); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984).

29. See *In re Yamamoto*, 740 F.2d 1569, 1572 (Fed. Cir. 1984) (describing the applicant’s ability to amend claims as one of the reasons that the broadest reasonable interpretation is appropriate in reexaminations). Note that an argument concerning the availability of amendments in IPRs was made in an important case recently decided by the Federal Circuit; that case has been accepted by the Supreme Court on certiorari and affirmed. See *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1276 (Fed. Cir. 2015) *aff’d sub nom.*, *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131 (2016).

30. U.S. CONST. amend. V.

31. See 35 U.S.C. § 312(a) (2012). There is no standing requirement in an IPR; the petitioner need only show that at least one claim in the patent has a reasonable likelihood of invalidity based on the evidence cited. See *id.* U.S.C. § 314.

32. PTO STATISTICS, *supra* note 11, at 9 (displaying outcomes of all IPRs to date).

IV. TAKINGS ANALYSIS OF INTER PARTES REVIEW

Takings have been traditionally conceptualized as the government formally taking title to private property for some public use, such as a constructing a highway. However, limiting takings compensation to these situations can create an incentive for government to regulate the use of land instead of formally taking title, in effect accomplishing the same result without having to pay compensation. The courts have recognized this problem, and in *Pennsylvania Coal Co. v. Mahon* the Supreme Court extended the right to compensation to instances where a government regulation acts as a taking.³³ This is the starting point for the analysis here, as an IPR does not result in formal transfer of the patent to the government.

A few preliminary qualifications to the analysis below are necessary at this point. This note assumes *arguendo* that the Takings Clause applies to patents because they are the personal property of their owners. There are academic writings on both sides of this issue.³⁴ However, there is a long line of older precedents that support this position,³⁵ and there is statutory support for the argument that patents are personal property.³⁶ The Federal Circuit has held that the Takings Clause does not apply to patents, but that decision was reversed by the Federal Circuit *en banc*, which did not reach the issue of a takings claim of a patent.³⁷

Supporting the claim that patents may be “taken” by the government, the Supreme Court has recently held that the Takings Clause applies to personal property, and in doing so, cited a 19th century takings case that concerned a patent as support for the

33. *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922) (holding that in some instances, a government regulation will trigger the requirement of just compensation found in the Fifth Amendment).

34. See Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 689 (2007) (defending the application of the Takings Clause to patents). *But see* Davida H. Isaacs, *Not All Property Is Created Equal: Why Modern Courts Resist Applying the Takings Clause to Patents, and Why They Are Right to Do So*, 15 GEO. MASON L. REV. 1, 2 (2007).

35. See Thomas Cotter, *Do Federal Uses of Intellectual Property Implicate the Fifth Amendment?*, 50 FLA. L. REV. 529, 535–538 (1998) (containing an overview of older precedent supporting the use of the Takings Clause on patents).

36. See 35 U.S.C. § 261 (2012) (stating that “subject to the provisions of this title, patents shall have the attributes of personal property”).

37. *Zoltek Corp. v. United States*, 672 F.3d 1309, 1327 (Fed. Cir. 2012).

premise that personal property was subject to the Takings Clause.³⁸ Finally, there is Supreme Court precedent supporting the application of the Takings Clause to other types of intangible intellectual property.³⁹

This note will not analyze the two further requirements of a takings analysis: the public use aspect and the compensation question.⁴⁰ Court interpret public use very broadly and would likely not be an issue in this case, as the standard required is low and the government has a legitimate interest in patent validity.⁴¹ Just compensation and the related inquiries of ripeness and exhaustion are interesting but factually intensive inquiries that are beyond the scope of this note.⁴²

Since *Pennsylvania Coal* held that regulations can be subject to the Takings Clause in 1922, jurisprudence on regulatory takings has developed along two primary lines. One line of cases has identified certain regulations that are always takings, and thus require compensation. These situations are often called categorical takings and can be analogized to per se rules created in antitrust law. The second series of cases covers all of the situations that are not categorical takings. In those cases, the courts must do a case-by-case analysis to determine whether a taking has occurred.

This part will first analyze the potential for the IPR to come within one of the categorical takings, and thus be considered a taking. The second section of this part will analyze potential liability of the IPR under the test that governs all situations outside of the categorical takings. Finally, the third section of this part will

38. See *Horne v. Dep't of Agric.*, 135 S. Ct. 2419, 2427 (2015) (holding that government appropriation of raisins was a taking and required just compensation). The Court cited the 1882 Supreme Court decision of *James v. Campbell*, 104 U.S. 356 (1882),

that concerned the appropriation of a patent by the government. See *Horne*, 135 S. Ct. at 2427.

39. See *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003 (1984) (analyzing a takings case involving a trade secret).

40. See, e.g., *id.* at 1014, 1016.

41. See *Hawaii Hous. Auth. v. Midkiff*, 467 U.S. 229, 240 (1984) (describing public use as being comparable with the scope of the police power). Public use would likely be satisfied here because the government has a legitimate interest in ensuring that the public is not subject to faulty patents.

42. A final issue that will not be discussed is the potential Article III ramifications of creating a replacement litigation forum outside of an Article III court. The Supreme Court recently denied certiorari of a Federal Circuit decision denying an Article III challenge to the IPR system. *MCM Portfolio LLC v. Hewlett-Packard Co.*, 137 S. Ct. 292 (2016) (mem).

analyze a more recent theory of takings liability, that of a judicial taking, and the potential liability of the IPR under that theory.

A. Categorical Takings and Inter Partes Review

Categorical takings are types of regulations that have been identified as always resulting in a taking. Thus, once the regulation in question is identified as belonging to one of these categorical exceptions, the takings analysis is over and a court should move on to the compensation issue. The Supreme Court has recognized two categorical takings: regulations that result in a permanent physical occupation of the property and regulations that result in a complete loss of economic value.

1. Permanent Physical Occupation

The Supreme Court announced that permanent physical occupations pursuant to a regulation always result in a taking in *Loretto v. Teleprompter Manhattan CATV Corp.*⁴³ In *Loretto*, the physical invasion consisted of two equipment boxes and a small cable television transmission wire that ran along the roof and down the front face of Petitioner's apartment building.⁴⁴ When Petitioner sued for trespass and taking without just compensation, the cable company successfully relied on a state statute that authorized the installation without any compensation.⁴⁵ The Supreme Court reversed, defending its ruling on historical precedent and the purpose of the Takings Clause.⁴⁶ In doing so, the Court held that the size of the physical occupation does not matter as long as it is permanent.⁴⁷

The Supreme Court has held that *Loretto* applies to personal property in a recent case, *Horne v. Department of Agriculture*.⁴⁸ In *Horne*, the challenged regulation was a government program that required raisin growers to give the government a portion of their crop every year.⁴⁹ The Court held that this appropriation of personal property was a taking that fell under the *Loretto* rule, and

43. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 421 (1982).

44. *See id.* at 422.

45. *See id.* at 423.

46. *See id.* at 426.

47. *See id.* at 436–37.

48. *See Horne v. Dep't of Agric.*, 135 S. Ct. 2419, 2427–28 (2015).

49. *See id.* at 2424.

thus required just compensation.⁵⁰ Therefore, if a patent is subject to “permanent physical appropriation” by the government, it would be categorized as a taking that required just compensation.

The question is whether the new IPR proceeding is an appropriation of a patent in a similar manner to the raisin reserve requirement found in *Horne*. The argument for a taking here is complicated by the conceptual problem of what exactly a permanent physical occupation of a patent would entail. It seems theoretically unsatisfying to say that a physical object, like a raisin, can be taken for the purposes of *Loretto*, but an intangible, and possibly more valuable, piece of personal property like a patent is exempt from a *Loretto*-type taking because there is no “thing” to appropriate. Even assuming that a *Loretto* taking is possible with a patent, a challenger is unlikely to succeed under this theory.

As a starting point, it seems clear that a regulation that requires the patent owner to grant the patent to the government, or even add the government as an owner of the patent almost certainly qualifies as the sort of physical invasion that triggers *Loretto*, especially since joint owners of a patent are normally free to make use of the entire patent.⁵¹ The IPR regulations do not change the ownership of the patents in question, so there is no taking under this theory.

An additional argument for a taking under *Loretto* is that the IPR regulations are equivalent to the government building a dam that permanently floods someone’s private property. The Supreme Court has held that these inundation cases result in a taking when the flooding is permanent.⁵² By analogy, extinguishing some or all of the claims in a patent is functionally the same as flooding someone’s real property. Since the regulation requires the use of the broadest reasonable interpretation in IPRs, a challenger may argue that creates a taking because statistically a patent has a very low chance of surviving the IPR intact.⁵³

50. *See id.* at 2428.

51. *See Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341, 344 (Fed. Cir. 1997) (holding that joint owners of a patent are free to use the patent and license it as they wish without permission of their co-owners).

52. *See Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 428 (1982) (stating that a taking is always found in permanent flooding situations and listing a series of cases as examples). The *Loretto* Court used the flooding cases as support for their permanent physical occupation rule.

53. PTO STATISTICS, *supra* note 11, at 9 (showing that just 14% of patents emerge from an IPR that reaches a final written decision without losing any claims).

The government's arguments against finding a taking under Loretto are straightforward. First, the government does not occupy, or authorize any third party to occupy, any part of the patents that go through an IPR proceeding. The regulations prescribe a litigation-like proceeding, not any form of transfer of title or use right. Any claims that are found invalid are simply extinguished, not "occupied" like in Loretto. Thus, there is no taking and no requirement for just compensation.

Finally, the regulation here is unlike the ones found in *Horne* and Loretto because it does not result in a taking in every instance. A small portion of the patents that go through an IPR survive intact.⁵⁴ Thus, the regulation is probabilistic and does not always result in an occupation, and Loretto is not applicable.

A court would probably not find a taking under Loretto in this situation. There are two problems with the argument for a taking. First, the fact that some of the patents survive IPR does not lend itself to a Loretto taking. When a dam is created pursuant to some statute or regulation, it either floods someone's property or it does not. In the case where no property is flooded, there is no taking. Another example is the statute in Loretto. When the statute in Loretto was used, cable television wire was invariably placed on the building in question. If the cable company did not wish to place the equipment, it would not use the statute. Here, when the IPR regulation is used, it results in what may be a taking most of the time, but not all of the time. This problem with certainty of outcome would seem to distinguish IPRs from situations like Loretto or flooding caused by dams.

Second, the litigation-like nature of the IPR proceeding is very different from the flooding cases or the statute in Loretto. Particularly in Loretto, the statute specifically created the taking in question by allowing placement of the wires. The IPR regulations and statutes set out the procedure and standard of the IPR proceeding. The result of the proceeding is based on the facts of the case that is brought to the PTO and the resulting litigation before the PTAB. The government would argue that the IPR regulation is simply setting the stage but is not actually doing the work of creating a taking. The difficulty of applying the permanent physical occupation standard to intangible property combined with the nature of the IPR regulations in question make it unlikely that a court would find that a taking took place under Loretto.

54. *See id.*

2. Prohibition of Economically Beneficial Use

The second type of categorical taking is the prohibition of economically beneficial use. The Supreme Court announced this rule in *Lucas v. South Carolina Coastal Council*.⁵⁵ Lucas, a private land developer, purchased two beachfront lots of property in South Carolina, which he intended to use to build single-family homes.⁵⁶ After he purchased the lots, but before he began building on them, a new regulation was passed that had the effect of prohibiting construction of “occupiable improvements” on the lots; the regulation was aimed at preventing coastal erosion.⁵⁷ When he appealed his unsuccessful state court takings challenge to the Supreme Court, it reversed, declaring that Lucas had suffered a taking because of the complete loss of economically beneficial use of his land.⁵⁸

As in the case of a *Loretto* taking, a takings challenge is unlikely to prevail under *Lucas*. As applied to patents that are found invalid during an IPR, the argument for a taking under this theory seems straightforward. A patent that has all of its claims held invalid has no economic value because it cannot be used to exclude others from practicing the invention. The use of the broadest reasonable interpretation makes it all but inevitable that this will be the result, thus the regulation should be considered a *Lucas* taking.

Here, it seems clear that a taking under *Lucas* would fail for similar reasons as a taking under *Loretto*. Patents have only been found completely invalid in about 72% of the IPRs held to date.⁵⁹ This does not match up with the regulation found in *Lucas*, which would categorically ban all development on property that is similar to *Lucas*'s. The fact that nearly three-quarters of the patents that go through IPR are found completely invalid may be troubling to patent owners, but it also means that a quarter of the patents do not lose all of their economic value. This conclusion indicates that not all of the patents are rendered economically valueless, and thus the IPR regulations should not fall under this categorical taking.

55. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019 (1992).

56. *Id.* at 1008.

57. See *id.* at 1008–09. The regulation was passed by the South Carolina Coastal Council, respondent, which was a body created by the South Carolina Legislature to manage land use with respect to coastal preservation. See *id.* at 1007–09.

58. See *id.* at 1019–20.

59. PTO STATISTICS, *supra* note 11, at 9 (displaying outcomes of all IPRs as of November 2015).

B. Ad Hoc Review of the IPR

The second line of regulatory takings cases is those that do not fall under one of the two categorical takings. These cases are decided on a case-by-case basis in what is often called “ad hoc” review. The seminal case in this area is Penn Central, which involved landmark preservation regulations in New York City.⁶⁰ The Pennsylvania Central Transportation Company wished to expand Grand Central Terminal in New York City by building an office tower on top of the station; the proposed development was rejected under landmark preservation regulations.⁶¹ The railroad sued in New York state court and won their takings claim, but no taking was found by both the intermediate and highest state appellate courts.⁶²

The Supreme Court affirmed, finding no taking in this case.⁶³ The Court first described the analysis as “essentially ad hoc, factual inquiries” that depend on several factors.⁶⁴ The Penn Central Court listed three factors to consider: the economic impact of the regulation on the property owner, interference with investment-backed expectations, and the character of the government action in question.⁶⁵

The other significant case that offers some guidance for ad hoc review was decided over 40 years before Penn Central. That case, Pennsylvania Coal, involved a regulation that required coal mining companies to leave behind underground support columns to ensure that surface land was not damaged due to settling.⁶⁶ The Supreme Court found that the regulation was a taking of the mining company’s property right in the support columns.⁶⁷ In the course of the Court’s analysis, it mentioned four factors that were relevant: the diminution in value of the property,⁶⁸ the existence of a public nuisance which the regulation sought to remedy,⁶⁹ the

60. See Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 107 (1978).

61. See *id.* at 116–18.

62. See *id.* at 119–21.

63. *Id.* at 122.

64. *Id.* at 124.

65. *Id.* at 124–25; see also Kaiser Aetna v. United States, 444 U.S. 164, 175 (1979) (describing the three factors above as being part of the ad hoc inquiry into whether a taking has occurred).

66. See Pa. Coal Co. v. Mahon, 260 U.S. 393, 412–13 (1922).

67. See *id.* at 415–16.

68. *Id.* at 413.

69. See *id.* at 413–14.

regulation resulting in the destruction of a recognized property right,⁷⁰ and whether there was an “average reciprocity of advantage” among the property owners.⁷¹ It should be noted that the cases did not define which factors are more important, and the Supreme Court has not developed any general guidance as to the relative weights of the factors since their introduction.⁷² Ad hoc analysis is heavily fact dependent, and the circumstances of the particular IPR case being analyzed will have a large effect on the outcome of any takings inquiry. This part will analyze each of the factors listed above in light of a potential takings challenge to the IPR regulations and draw conclusions regarding the possible success of an IPR takings challenge under the Penn Central line of cases.

1. Diminution in Value

Diminution in value is mentioned in both Penn Central and Pennsylvania Coal, and refers to the loss of value in the owner’s property. The theory is that as the amount of value lost from a property approaches 100%, the regulation looks more like a taking. Here, a challenger would argue that the regulation can lower the value of a patent in two ways. First, if a patent goes through IPR, it has an 87% chance of losing some economic value, and a 72% chance of losing all economic value as a result of all of the claims being cancelled.⁷³ This means that almost three quarters of the patents that have the regulation applied to them lose all of their value, and at least 87% lose some of it.

A challenger may also argue that patents may lose value through the potential chilling effect the regulation has on patents. While there is no statistical evidence to support this argument, the premise would be that with the creation of this new IPR, a patent is much more likely to be found invalid based on some prior art due to the broader claim construction standard. Since a patent that is more likely to be found invalid is worth less from an economic standpoint, other parties may pay less for patents with the threat of an IPR being instituted, and presumably patent licensees will think hard about paying high licensing fees when they know they can

70. *See id.* at 414.

71. *Id.* at 415.

72. *See* DAVID A. DANA & THOMAS W. MERRILL, PROPERTY: TAKINGS 163-64 (2002) (describing the outcome of ad hoc factor analyses as “highly uncertain”).

73. *See* PTO STATISTICS, *supra* note 11, at 9.

just challenge a patent's validity in an IPR with a high chance of success.

The actual diminution here is highly fact dependent. The patents that lose all of their claims have suffered a total loss in value. But the 14% of patents that lost some of their claims may or may not have suffered a serious loss in value.⁷⁴ A given claim in a patent might be almost all of the value of the patent if it covers the central invention, or it might be completely irrelevant economically. Finally, it is important to remember that 14% of patents involved in an IPR suffered no direct damages.⁷⁵ Quantifying the second loss of value, the chilling effect, is also very difficult. How much does the fear of IPR drive patent and licensing prices? It would seem that the answer is very dependent on the quality of the patent, as a strong patent would presumably garner high patent and licensing prices regardless of the presence of the new IPR. A court would likely be heavily influenced by that facts on this factor, and in some cases diminution in value would favor a taking, while in other cases this factor would not indicate a taking.

2. Investment-Backed Expectations

Reasonable investment-backed expectations⁷⁶ is based on a reliance theory, which reasons that if a property owner was confident enough in the state of the law with respect to her property to make significant financial investments, reversing or otherwise changing that law is more likely to be a taking. A challenger would argue that there is a strong case that patent owners had reasonable investment-backed expectations in the standard of claim construction that would be applied on a challenge of patent validity. The new IPR has no direct precedent in the PTO or other areas of law; patents traditionally, and still do, enjoy a presumption of validity upon challenge in court. The use of the broadest reasonable interpretation opens an entire new avenue of attack on a patent's validity, and one that is turning out to be heavily biased against patent owners. Many industries invest heavily in technologies based on patents; it seems likely that

74. PTO STATISTICS, *supra* note 11, at 9 (showing 97/675 IPRs that reach a final written decision result in one or more claims being cancelled).

75. *Id.*

76. *Kaiser Aetna v. United States*, 444 U.S. 164, 175 (1979). The *Kaiser* court reformulated *Penn Central's* "distinct investment-backed expectations" factor into a "reasonable investment-backed expectations" factor, which is the language that will be used in this paper.

patents with high investment-backed expectations have undergone an IPR to their detriment. The government would argue that the broadest reasonable interpretation has been used at the PTO extensively, including in prior post-grant proceedings. A court would likely find this factor weighs heavily in favor of finding a taking because of the novel nature of the IPR and its new, to the PTO, feature of being a true alternative to court litigation of patent validity.

An interesting point of law should be remarked on at this point. The above reasonable investment-backed expectations analysis assumes that the patent was issued prior to the implementation of the AIA. Logically, it is hard for a patent owner to argue that they had reasonable expectations of their patent's presumption of validity if they were aware of the possibility of an IPR challenge, which was created by the AIA.⁷⁷ This type of notice argument dovetails nicely with reliance-based theories such as investment-backed expectations.

However, there are some cases that suggest even property owners on notice may have a reliance argument based on longstanding provisions of the law.⁷⁸ The presumption of validity found in section 282 was enacted as part of the 1952 Patent Act,⁷⁹ and might be considered a longstanding provision of patent law. Thus, it is possible that even a post-AIA patent might be able to make a reasonable investment-backed expectations argument in the right circumstances.

3. Character of the Government Action

The character of the government action was one of the factors listed in *Penn Central*.⁸⁰ The *Penn Central* Court remarked that a taking is more likely to have occurred when the action in question constitutes a physical invasion of the property, as contrasted with a regulation that “arises from some public program adjusting the benefits and burdens of economic life to promote the common

77. Patents have a lifetime of 20 years from filing, and the typical processing time for a patent is around 3 years. 35 U.S.C. § 154 (2015). There are many patents that were filed in the late 2000s that are still valid today.

78. See *Palazzolo v. Rhode Island*, 533 U.S. 606, 630 (2001) (“That claim is not barred by the mere fact that title was acquired after the effective date of the state-imposed restriction.”); see also *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1030–31 (1992); *DANA & MERRILL*, *supra* note 72, at 160.

79. Patent Act of 1952, Pub. L. No. 82-593, § 282, 66 Stat. 792, 812 (1952).

80. *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978).

good.”⁸¹ The theory is that a regulation that looks like a standard use regulation is less likely to be held a taking, while a regulation that creates a physical invasion, as in *Loretto*, is more likely to be a taking.

An IPR challenger would argue that the broader claim construction standard has never been used in a litigation-like proceeding that involved a challenge to validity, and that the standard in fact contradicts the statutory presumption of validity that patents enjoy. Furthermore, the statistics issued by the PTO show that IPRs are heavily biased against the patent owner, showing that a patent that enters an IPR has an 87% chance of losing at least some of its claimed inventions.

The government would argue that the IPR claim construction regulation is an administrative regulation that governs the procedure of an internal PTO proceeding. This is analogous to a land-use regulation, which is burdensome but necessary to ensure proper use of the benefits granted. It is also a regulation that is consistent with extended practice at the PTO. Finally, the regulation does not work to deprive any ownership rights or limit the patent owner’s right to exclude others.

This factor will probably weigh in favor of not finding a taking. The IPR regulation is not like the one found in *Loretto*, which always led to a physical invasion of the owner’s property. It is likely that a court would consider it to be a procedural or standard setting regulation. The fact that the regulation is working out to lead to a high proportion of invalidated patents is troubling from a patent owner’s perspective, and may or may not have been the goal of the regulation, but it still seems to be a regulation that lies closer to a police power or land use regulation than an act of eminent domain.

4. Public Nuisance

The public nuisance factor was recognized in the older *Pennsylvania Coal* case, but it has been used in more recent cases such as *Keystone Bituminous Coal*, which stated that courts are generally hesitant to find that a regulation that remedies a public nuisance is a taking.⁸² Here, it is unlikely that the IPR regulation requiring the use of the broadest reasonable interpretation is aimed at remedying a public nuisance. Patents were not a nuisance at

81. *Id.*

82. See *Keystone Bituminous Coal Ass’n v. DeBenedictis*, 480 U.S. 470, 491 (1987).

common law, and even under a more liberal definition of nuisance, it is hard to imagine a court agreeing that a patent is a public nuisance. This factor is unlikely to affect a court's analysis of this issue because of a lack of relevance.

5. Destruction of a Recognized Property Right

Destruction of a recognized property right is found in *Pennsylvania Coal*, and has been used by other courts as a factor in the ad hoc analysis.⁸³ Here, the property right in question is the right to exclude, which has been recognized as an important property right by the Supreme Court.⁸⁴ The challenger would argue that the operation of the regulation has resulted in the destruction of some part of the right to exclude in 87% of the IPRs to date.

The government's response is likely to be that the regulation itself does not destroy these rights, but just sets a standard that is applied by a neutral body to the facts of each IPR petition. This again brings up the stage-setting problem discussed earlier in the note, but in this case, it is probably not a compelling argument. A court is likely to find that the statistical results of the real-world application of the regulation would lead to finding that it is creating a destruction of a recognized property right: the right to exclude. Thus, a court would probably find this factor in favor of a taking.

6. Average Reciprocity of Advantage among Owners

Average reciprocity is another factor found in *Pennsylvania Coal*, and has been mentioned more recently by the Supreme Court in other takings cases.⁸⁵ The theory behind average reciprocity is that a regulation that affects all of the owners of a certain type of property equally looks more like a valid use of the police power as opposed to eminent domain, which typically benefits some property owners at the expense of a select group of property owners. Challengers would argue that patent owners are suffering unequal losses compared to property owners in general, and thus there is no average reciprocity of advantage.

The government would argue that the regulation should be considered in terms of the effect it has on patent owners. Since the

83. See, e.g., *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1011–12 (1984).

84. See *Kaiser Aetna v. United States*, 444 U.S. 164, 179–80 (1979) (describing the right to exclude as “universally held to be a fundamental element of the property right”).

85. See, e.g., *Keystone*, 480 U.S. at 491.

regulation applies to all patent owners equally, there is average reciprocity and no taking indicated under this factor. This again brings up the problem of the denominator, or what to compare in determining average reciprocity. The outcome will depend heavily on how a court views the problem, but it seems that court would tilt in favor of patent owners given the low chance of a patent surviving an IPR.

7. Ad Hoc Review Conclusions

What conclusions can be drawn from the above analysis of factors in the ad hoc inquiry? First, it should be noted that this is not a precise test with specific weights assigned to each factor, but a multi-factor fact intensive inquiry that is highly dependent on the facts of the specific case. A plaintiff who has invested millions of dollars in factory tooling based on a pre-AIA patent which is completely wiped out in an IPR presents a much stronger case than a plaintiff who has not made any real investment based on their post-AIA patent.

Simply looking at the factors, it appears that four favor a taking in some way, with only the character of the government action appearing to favor not finding a taking. Guidance in weighing the factors is limited in case law, but the Supreme Court case of *Ruckelshaus v. Monsanto* offers some direction.⁸⁶ *Ruckelshaus* involved a pesticide company challenging a complex series of regulations that result in the public disclosure of the formula of its pesticides, which is a trade secret.⁸⁷ The Court found that trade secrets were property for the purposes of the takings clause and held that a certain portion of the regulations created a taking of Monsanto's property.⁸⁸

Monsanto's taking claim failed because the Court held that it had not exhausted the options for compensation available under the Tucker Act.⁸⁹ In addition to its holding that intangible property enjoys the protection of the Takings Clause, *Ruckelshaus* is important because of the heavy weight the Court gave to the investment-backed expectations factor. The court found that the force of this factor was so "overwhelming" that it "disposes of the takings question" in favor of Monsanto.⁹⁰ In a similar case, the First

86. *Ruckelshaus*, 467 U.S. at 1005.

87. *Id.* at 998-99.

88. *Id.* at 1003-04, 1013-14.

89. *Id.* at 1019.

90. *Id.* at 1005.

Circuit en banc found a taking based on a Massachusetts tobacco industry regulation that required disclosure of the trade secret formulas of certain tobacco products.⁹¹ Judge Selya, concurring in the judgment, argued that the Court should have stopped its analysis after finding that the tobacco companies possessed investment-backed expectations in the trade secret because of the language of Ruckelshaus.⁹²

Taken as guidance, this refocuses the ad hoc analysis on the economic impact of this regulation to patent owners. Challengers have a good argument that this regulation will frustrate investment-backed expectations and result in a diminution in value. Framed in terms of the economy as a whole, there is also no average reciprocity of advantage because patent owners are bearing an unequal burden for the good of the economy.

Finally, as a practical policy consideration, the creation of the IPR was driven in part by a desire to remedy the perceived abuses of the patent system by non-practice entities (“NPEs”), commonly known as patent trolls. A low-cost system for parties to challenge the validity of patents held by NPEs was a goal of the patent system reforms that led to the creation of the new IPR system. Thus, it is hard for the government to credibly argue that this is just an administrative regulation governing procedure when it is in fact meant to accomplish exactly what has been happening: the invalidity of large numbers of patents. A court following this reasoning should find that the IPR regulations represent a taking.

However, it should be noted that ad hoc review is generally highly favorable to the government, and even with the proper case a challenger would be facing an uphill battle to succeed with their ad hoc claim.

C. IPR and Judicial Takings

A final potential line of takings jurisprudence is based on the idea of a judicial taking. The theory behind a judicial taking is a situation where a court changes a law that causes property owners to lose part or all of their property. The newest kind of taking, this theory was announced by a plurality opinion of the Supreme Court in a case called *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*.⁹³ That case

91. *Philip Morris, Inc. v. Reilly*, 312 F.3d 24, 46–47 (1st Cir. 2002).

92. *See id.* at 48 (Selya, J., concurring in the judgment).

93. *Stop the Beach Renourishment, Inc. v. Fla. Dep’t of Env’tl. Prot.*, 560 U.S. 702, 714–15 (2010).

involved a Florida state program to combat beach erosion by filling in beaches that had been washed away.⁹⁴ The filling program resulted in a strip of beach that belonged to the state being created between the private beach owners and the water.⁹⁵ The owners brought an administrative challenge, claiming that their right of contact with the water and right to accretions had been taken; the challenge was unsuccessful, but the District Court of Appeal for the First District found an unconstitutional taking.⁹⁶ The Florida Supreme Court reversed this finding.⁹⁷ The United States Supreme Court held that a court order may constitute a taking of property under the Fifth Amendment just as readily as legislative or executive action,⁹⁸ but found no taking because the alleged property rights of the private owners did not in fact exist.⁹⁹

A judicial taking is unlikely to have occurred in the context of an IPR. First, unlike the issue in *Stop the Beach*, the court in question here, the PTAB, is not ruling on the validity of the regulations, but is using them as part of a standard of review for a litigation proceeding. The courts here are not changing the law, but applying law created by the executive branch. This is a fine distinction, as in *Stop the Beach* the state courts affirmed the state created regulation, but allowing this type of judicial taking would open courts to a very broad range of takings claims.

Second, the PTAB's use of the IPR regulations does not match the judicial takings theory. One commentator has defined a judicial taking as "a change in property law that otherwise meets the criteria for a taking under the Constitution."¹⁰⁰ The case in *Stop the Beach* was not a taking because the property rights that were being "taken" did not exist, and thus there was no property to be taken.¹⁰¹ Here, the PTAB is not changing any law, but simply applying a regulation as it is written.

Finally, it is unclear if a judicial takings claim is valid because of questions about the binding precedent of *Stop the Beach*. The case was a plurality decision, and much has been written

94. *See id.* at 709.

95. *See id.* at 710-11.

96. *See id.* at 712.

97. *See id.*

98. *See id.* at 715.

99. *See id.* at 733.

100. Barton H. Thompson, Jr., *Judicial Takings*, 76 VA. L. REV. 1449, 1522 (1990).

101. *Stop the Beach*, 560 U.S. at 733.

discussing the precedential implications of the case.¹⁰² In summary, it seems unlikely that a court would find that the PTAB's use of the IPR regulations creates a judicial taking.

V. CONCLUSION

The recent patent law reforms brought many changes, including the creation of the IPR as a low-cost alternative to challenging the validity of a patent in court. The IPR process has not been friendly to patent owners, with 87% of the challenges resulting in finding at least one claim of a patent invalid.¹⁰³ A challenge to the regulation as a violation of the Takings Clause presents an issue of first impression that includes several interesting inquiries. A court dealing with the issue will be applying a doctrinally difficult area of law to this novel problem. Although it is likely that the IPR regulations do not fall under any of the categorical takings, this note suggests that there is an argument for finding that the regulations are a taking under the Penn Central line of takings cases.

102. See, e.g., Josh Patashnik, Note, *Bringing A Judicial Takings Claim*, 64 STAN. L. REV. 255, 260-64 (2012).

103. See PTO STATISTICS, *supra* note 11, at 9.