

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

WesternGeco LLC v. ION Geophysical Corp. (In re WesternGeco LLC)

WesternGeco LLC v. ION Geophysical Corp. (In re WesternGeco LLC), 889 F.3d 1308 (Fed. Cir. 2018) · No. 2016-2099, 2016-2100, 2016-2101, 2016-2332, 2016-2333, 2016-2334 · Decided May 7, 2018

SUMMARY

The United States Court of Appeals for the Federal Circuit affirmed six Patent Trial and Appeal Board decisions finding claims in three WesternGeco patents unpatentable in inter partes review proceedings. The court held that substantial evidence supported the Board’s anticipation and obviousness determinations and that the proceedings were not barred under 35 U.S.C. § 315(b). The court also addressed the common-law meaning of privity and concluded that ION and PGS were not privies for purposes of the statutory time bar.

CASE DETAILS

COURT	United States Court of Appeals for the Federal Circuit
WRITING FOR THE COURT	Chen; Wallach; Hughes
JURISDICTION	Federal
DECIDED	May 7, 2018
DOCKET	2016-2099, 2016-2100, 2016-2101, 2016-2332, 2016-2333, 2016-2334
DISPOSITION	affirmed
PROCEDURAL POSTURE	Appeal from six final written decisions of the Patent Trial and Appeal Board in inter partes review proceedings involving three WesternGeco patents.
STANDARD OF REVIEW	The court reviewed the Board's decisions under the Administrative Procedure Act; legal conclusions de novo and underlying factual findings for substantial evidence. The ultimate obviousness determination was reviewed de novo, underlying factual findings for substantial evidence, claim construction based on intrinsic evidence de novo, and denial of additional discovery for abuse of discretion.
PRECEDENTIAL VALUE	precedential

PARTIES

WesternGeco LLC v. ION Geophysical Corporation, ION International S.A.R.L.

TOPICS[patent law](#)[obviousness](#)[administrative procedure act](#)[appellate procedure](#)[statutory interpretation](#)**PRACTICE AREAS**[patent law](#)[inter partes review](#)[administrative law](#)[appellate procedure](#)**QUESTIONS PRESENTED**

1. Whether the inter partes review petitions were barred under 35 U.S.C. § 315(b) because ION was a privy or real party in interest of PGS.
2. Whether the Board abused its discretion by denying WesternGeco additional discovery concerning the alleged privity relationship.
3. Whether the Board properly construed the claim term "predicting positions" in the '607 Patent.
4. Whether the Board properly construed the term "control mode" in the '520 Patent and correctly found the feather-angle claims obvious over Workman.
5. Whether the Board properly construed "global control system" in the '967 Patent and correctly found the challenged claims anticipated or obvious over the '636 PCT.
6. Whether the Board properly evaluated WesternGeco's objective evidence of nonobviousness.

HOLDINGS

1. ION and PGS were not privies within the meaning of § 315(b). Privity is a flexible, fact-dependent inquiry informed by common-law preclusion principles and bounded by due process; control is relevant but is not the exclusive test.
2. The IPR petitions were not barred by the one-year time limitation in 35 U.S.C. § 315(b).
3. The Board did not abuse its discretion in denying WesternGeco's request for additional discovery.
4. The term "predicting positions" means "estimating the actual locations" of streamer positioning devices and does not require use of behavior-predictive model-based control logic.
5. The Board correctly construed "control mode" to mean "operational state" and properly declined to add requirements that the mode be goal-oriented and automatic.
6. The Board correctly found claims directed to the feather-angle mode obvious over Workman.
7. The Board properly construed "global control system" as "a control system capable of overseeing and affecting the array of streamers and streamer positioning devices" and correctly found the challenged claims anticipated or, alternatively, obvious over the '636 PCT.
8. The Board properly found that WesternGeco failed to establish a sufficient nexus between the claimed inventions and its objective evidence of nonobviousness, and that the evidence would not overcome the

strong showing of obviousness in any event.

KEY QUOTATIONS

“But, importantly, the reach of privity cannot extend beyond the limits of due process.” (at 1316)

“As a general proposition, we agree with the Board that a common desire among multiple parties to see a patent invalidated, without more, does not establish privity.” (at 1318)

“The Board properly held that ION is not a real party in interest or privy of PGS.” (at 1322)

FACTUAL BACKGROUND

WesternGeco owned patents directed to controlling the movement and positioning of marine seismic streamers towed behind a vessel. WesternGeco sued ION for infringement, obtained a favorable jury verdict, and later sued PGS for related infringement. PGS responded by filing six inter partes review petitions challenging claims of three WesternGeco patents, and ION sought to join the first three proceedings. The Board found the challenged claims unpatentable as anticipated or obvious and rejected WesternGeco's contention that the proceedings were barred because ION was a privy or real party in interest of PGS.

PROCEDURAL HISTORY

Petroleum Geo-Services, Inc. filed six petitions for inter partes review challenging claims of WesternGeco's patents. The Board instituted review, permitted ION to join the first round with spectator status, rejected WesternGeco's 35 U.S.C. § 315(b) time-bar arguments, and held the challenged claims unpatentable as anticipated or obvious. WesternGeco appealed; PGS later settled and withdrew, while ION continued as appellee. The Federal Circuit affirmed.

DISPOSITION

affirmed

CASES CITED

- WesternGeco L.L.C. v. ION Geophysical Corp., 837 F.3d 1358 (Fed. Cir. 2016)
- FAA v. Cooper, 566 U.S. 284 (2012)
- Microsoft Corp. v. i4i P'ship Ltd., 564 U.S. 91 (2011)
- Intel Corp. v. ITC, 946 F.2d 821 (Fed. Cir. 1991)
- Taylor v. Sturgell, 553 U.S. 880 (2008)
- Aspx Eyewear, Inc. v. Zenni Optical, Inc., 713 F.3d 1377 (Fed. Cir. 2013)
- Cal. Physicians' Serv. v. Aoki Diabetes Research Inst., 163 Cal. App. 4th 1506 (Cal. Ct. App. 2008)
- Wi-Fi One, LLC v. Broadcom Corp., 878 F.3d 1364 (Fed. Cir. 2018) (en banc)
- Wi-Fi One, LLC v. Broadcom Corp., No. 2015-1944, 2018 WL 1882911 (Fed. Cir. Apr. 20, 2018)
- In re Sullivan, 362 F.3d 1324 (Fed. Cir. 2004)
- Dickinson v. Zurko, 527 U.S. 150 (1999)

- Belden Inc. v. Berk-Tek LLC, 805 F.3d 1064 (Fed. Cir. 2015)
- Nike, Inc. v. Adidas AG, 812 F.3d 1326 (Fed. Cir. 2016)
- In re Giannelli, 739 F.3d 1375 (Fed. Cir. 2014)
- Consol. Edison Co. v. NLRB, 305 U.S. 197 (1938)
- In re Applied Materials, Inc., 692 F.3d 1289 (Fed. Cir. 2012)
- Ultratec, Inc. v. CaptionCall, LLC, 872 F.3d 1267 (Fed. Cir. 2017)
- In re Packard, 751 F.3d 1307 (Fed. Cir. 2014)
- Microsoft Corp. v. Proxyconn, Inc., 789 F.3d 1292 (Fed. Cir. 2015)
- Aqua Prods., Inc. v. Matal, 872 F.3d 1290 (Fed. Cir. 2017) (en banc)
- Comaper Corp. v. Antec, Inc., 596 F.3d 1343 (Fed. Cir. 2010)
- Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005)
- Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC, 825 F.3d 1373 (Fed. Cir. 2016)
- Intellectual Ventures II LLC v. Ericsson Inc., 686 F. App'x 900 (Fed. Cir. 2017)
- Exxon Chem. Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553 (Fed. Cir. 1995)
- Homeland Housewares, LLC v. Whirlpool Corp., 865 F.3d 1372 (Fed. Cir. 2017)
- SAS Institute, Inc. v. ComplementSoft, LLC, 825 F.3d 1341 (Fed. Cir. 2016)
- SAS Institute, Inc. v. Iancu, No. 16-969 (U.S. Apr. 24, 2018)
- Genzyme Therapeutic Prods. v. Biomarin Pharm. Inc., 825 F.3d 1360 (Fed. Cir. 2016)
- Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560 (Fed. Cir. 1988)
- PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342 (Fed. Cir. 2007)
- Kennametal, Inc. v. Ingersoll Cutting Tool Co., 780 F.3d 1376 (Fed. Cir. 2015)
- ABT Sys., LLC v. Emerson Elec. Co., 797 F.3d 1350 (Fed. Cir. 2015)
- Polaris Indus., Inc. v. Arctic Cat, Inc., 882 F.3d 1056 (Fed. Cir. 2018)
- Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 229 F.3d 1120 (Fed. Cir. 2000)
- Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299 (Fed. Cir. 2006)
- In re DBC, 545 F.3d 1373 (Fed. Cir. 2008)
- Sud-Chemie, Inc. v. Multisorb Techs., Inc., 554 F.3d 1001 (Fed. Cir. 2009)

OPINION

CHEN, J.

United States Court of Appeals for the Federal Circuit _____
 WESTERNGECO LLC, Appellant v. ION GEOPHYSICAL CORPORATION, ION
 INTERNATIONAL S.A.R.L., Appellees IN RE: WESTERNGECO LLC, Appellant
 _____ 2016-2099, 2016-2100, 2016-2101, 2016-2332, 2016-2333, 2016-
 2334 _____ Appeals from the United States Patent and Trade- mark Office,
 Patent Trial and Appeal Board in Nos. IPR2014-00687, IPR2014-00688, IPR2014-00689,
 IPR2014-01475, IPR2014-01477, IPR2014-01478, IPR2015-00565, IPR2015-00566, IPR2015-

00567. _____ Decided: May 7, 2018 _____ JOHN C. O'QUINN, Kirkland & Ellis LLP, Washington, DC, argued for appellant.

Also represented by WILLIAM H. BURGESS; LESLIE M. SCHMIDT, TIMOTHY GILMAN, New 2 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. York, NY; MICHAEL KIKLIS, CHRISTOPHER RICCIUTI, Oblon, McClelland, Maier & Neustadt, LLP, Alexandria, VA. GREGORY A. CASTANIAS, Jones Day, Washington, DC, argued for appellees. Also represented by JASON M. GARR, EMILY JUSTINE TAIT, Detroit, MI; DANIELLE J. HEALEY, BRIAN GREGORY STRAND, Fish & Richardson, PC, Houston, TX. _____ Before WALLACH, CHEN, and HUGHES, Circuit Judges.

CHEN, Circuit Judge. WesternGeco LLC (WesternGeco) appeals from the final written decisions of the Patent Trial and Appeal Board (Board) in inter partes review (IPR) proceedings instituted on six petitions filed by Petroleum Geoservices, Inc. (PGS)¹ against three patents owned by WesternGeco: U.S. Patent Nos. 7,080,607 (the '607 Patent), 7,162,967 (the '967 Patent), and 7,293,520 (the '520 Patent) (collectively, the WesternGeco Patents).

PGS filed its IPR petitions in two rounds: the first three petitions challenged certain claims of each of the three WesternGeco Patents; and the second three petitions challenged additional claims of each of the WesternGeco Patents.

After the first round of IPRs was instituted, ION Geophysical Corp. and ION International S.A.R.L. (together, ION) moved, under 35 U.S.C. § 315(c), to join those IPRs. The Board granted ION's request but restricted its involvement to receiving notification of filings and attending, rather than actively participating in, depositions and oral hearings. ¹ While WesternGeco's appeal before this court was pending, PGS settled with WesternGeco and withdrew from the appeal.

See PGS's Unopposed Mot. to Withdraw at 2, ECF No. 82; Order at 2, ECF No. 86. WESTERNGECO LLC v. ION GEOPHYSICAL CORP. ³ The Board issued six final written decisions, finding all of the instituted claims in the six proceedings to be unpatentable as anticipated or obvious. It also rejected WesternGeco's arguments that the IPR proceedings were time-barred under 35 U.S.C. § 315(b).

We conclude that substantial evidence supports the Board's unpatentability determinations, as well as its conclusion that the proceedings were not time-barred. We thus affirm the Board's decisions. BACKGROUND I. Technical Background We have familiarity with the WesternGeco Patents through prior appeals. See, e.g., *WesternGeco L.L.C. v. ION Geophysical Corp.*, 837 F.3d 1358, 1364 (Fed.

Cir. 2016). ² The WesternGeco Patents are directed to technologies for controlling the movement and positioning of a series of streamers towed in an array behind a ship. These streamers emit

acoustic signals and detect the returning signals that reflect from the ocean floor. '967 Patent col. 1, ll. 28–41.

The collected data can be used to create a map of the subsurface geology, helping oil companies analyze underwater natural resource formations and explore for oil and gas beneath the ocean floor. Conventional marine seismic survey systems use long streamers that are towed behind ships in open-water conditions.

The streamers, equipped with sensors, can stretch for a mile or more. Vessel movements, weather, and other conditions can cause the streamers to tangle or drift apart. To obtain accurate survey data, it is necessary to control the positioning of the streamers, both vertically in the water, as well as horizontally against 2 The prior appeals involved an additional patent owned by WesternGeco, U.S. Patent No. 6,691,038 (the '038 Patent), which is not at issue here.

4 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. ocean currents and forces that can cause the normally- parallel streamers to bend and even entangle with each other. Id. at col. 1, l. 42–col. 2, l. 16. The WesternGeco Patents generally relate to a system for controlling the positioning of the streamers in relation to each other by mounting on each streamer a set of “streamer positioning devices” which can realign the individual streamers into their desired positions.

Id. col. 2, ll. 56–58. II. Procedural History WesternGeco, PGS, and ION are all participants in the marine seismic survey industry. WesternGeco launched its commercial steerable streamer system, the Q-Marine, in 2000. J.A. 4794. Subsequently, PGS commissioned ION to design and build a competing commercial streamer system, the DigiFIN, which launched several years later.

Id. In 2009, WesternGeco sued ION in the U.S. District Court for the Southern District of Texas (the District Court) for infringement of the WesternGeco Patents, as well as the '038 Patent. To assist in developing its infringement case against ION, WesternGeco served PGS with a third-party subpoena, seeking information relating to PGS's use and operation of ION's DigiFIN product.

In response, PGS appeared (through its own counsel) in the lawsuit as a third party and produced documents, but did not file anything in that litigation. In August 2012, a jury returned a verdict finding ION had infringed all four patents asserted and that ION had failed to prove that any of the asserted patents were invalid.

On appeal, this court affirmed all aspects of the District Court's judgment except for willful infringement and damages. 3 3 We vacated the judgment of no willful infringement by ION and remanded for further consideration of enhanced damages under § 284. See WesternGeco L.L.C. WESTERNGECO LLC v. ION GEOPHYSICAL CORP. 5 After receiving a favorable

infringement verdict against ION, WesternGeco next sued PGS in the District Court for allegedly-related infringement of the same four patents ION had been found to have infringed.

In re- sponse, PGS sought to have the patent claims asserted against it administratively cancelled, by filing at the Board the two rounds of inter partes review petitions discussed above. The Board denied institution of review for the petitions concerning the '038 Patent but instituted review on all six of PGR's IPR petitions concerning the WesternGeco Patents, finding a reasonable likelihood that PGS would prevail with respect to the challenged claims.

After the first round of PGS's petitions had been insti- tuted, ION moved to join those proceedings. Both West- ernGeco and PGS opposed. WesternGeco argued that joinder would create delay and complicate the PGS IPR schedule. PGS, for its part, expressed concern that West- ernGeco would seek to add a "substantial volume of testimony" from the ION litigation to the IPR proceeding.

PGS added that such testimony would be highly prejudi- cial because it did not have the opportunity to participate in the ION lawsuit. After considering the arguments, the Board granted ION's request to join PGS's first round of IPRs, but restricted ION's role to "spectator" status, meaning that it had no right "to file papers, engage in v. ION Geophysical Corp., 837 F.3d 1358, 1364 (Fed.

Cir. 2016). We also reversed the District Court's award of lost profits resulting from conduct occurring abroad. *Id.* (reinstating aspects of our judgment set forth in *Western- Geco L.L.C. v. ION Geophysical Corp.*, 791 F.3d 1340, 1344 (Fed. Cir. 2015)).

In January 2018, the Supreme Court agreed to review WesternGeco's challenge to our ruling on lost profits. *WesternGeco L.L.C. v. ION Geo- physical Corp.*, 138 S. Ct. 734 (2018). It heard oral argu- ment in April 2018. 6 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* discovery, or participate in any deposition or oral hear- ing." J.A. 13439. ION did not join the second round of IPRs.

The Board issued six final written decisions (two deci- sions per patent), finding that various claims were either anticipated by or would have been obvious over several prior art references. See generally *Petroleum Geo-Servs., Inc. v. WesternGeco L.L.C.* (PGS I), No. IPR2014-00687, 2015 WL 10378275 (P.T.A.B. Dec. 15, 2015) (J.A. 1–44) (invalidating claims 1 and 15 of the '967 Patent); *Petrole- um Geo-Servs., Inc. v. WesternGeco L.L.C.*

(PGS II), No. IPR2014-00688, 2015 WL 10378495 (P.T.A.B. Dec. 15, 2015) (J.A. 45–99) (invalidating claims 1 and 15 of the '607 Patent); *Petroleum Geo-Servs., Inc. v. WesternGeco L.L.C.* (PGS III), No. IPR2014-00689, 2015 WL 10380984 (P.T.A.B. Dec. 15, 2015) (J.A. 100–52) (invalidating claims 1–2 and 18–19 of the '520 Patent); *Petroleum Geo-Servs., Inc. v. WesternGeco L.L.C.*

(PGS IV), No. IPR2014-01475 (P.T.A.B. Mar. 16, 2016) (J.A. 153–216) (invalidating claim 4 of the '967 Patent); Petroleum Geo-Servs., Inc. v. WesternGeco L.L.C. (PGS V), No. IPR2014-01477 (P.T.A.B. Mar. 16, 2016) (J.A. 217–95) (invalidating claims 16–23 of the '607 Patent); Petroleum Geo-Servs., Inc. v. WesternGeco L.L.C. (PGS VI), No. IPR2014-01478 (P.T.A.B.

Mar. 16, 2016) (J.A. 296–359) (invalidating claims 3, 5, 13–17, 20, 22, and 30–34 of the '520 Patent). WesternGeco appealed the Board's decisions in PGS I–VI to this court. The appeals were consolidated, listing both PGS and ION as Appellees. See Order at 1–2, ECF No. 27.

In relevant part, WesternGeco argued that the Board deprived WesternGeco of due process and violated the Administrative Procedure Act by denying WesternGeco the opportunity to be heard on whether the inter partes reviews were time-barred pursuant to 35 U.S.C. § 315(b). WesternGeco also reserved rights to file additional briefing in light of our then-pending en banc reconsideration of *Wi-Fi One, LLC v. Broadcom Corp.*, 837 F.3d WESTERNGECO LLC v. ION GEOPHYSICAL CORP. 7 1329 (Fed.

Cir. 2016). PGS filed a response brief, and ION “join[ed] in and adopt[ed] by reference” PGS's brief rather than filing its own. ION's Joinder in the Br. of PGS at 1, ECF No. 50; see Order at 2, ECF No. 51. After briefing was completed in this appeal, PGS settled with WesternGeco and filed a motion to withdraw. See PGS's Unopposed Mot. to Withdraw at 2, ECF No. 82.

We granted PGS's motion, ordered the USPTO to inform the court whether it intended to intervene, and ordered WesternGeco and ION to file a joint status report. See Order at 2, ECF No. 86. The USPTO declined to intervene. Upon consideration of the parties' report, we ordered ION to file a new brief, addressing only PGS I–III, and permitted WesternGeco to file a new reply brief.

Order at 2, ECF No. 92. Shortly before the date scheduled for oral argument, we issued our en banc decision in *Wi-Fi One v. Broadcom Corp.*, 878 F.3d 1364 (Fed. Cir. 2018) (en banc). *Wi-Fi One* held that “time-bar determinations under [35 U.S.C.] § 315(b) are reviewable by this court” and overruled our prior contrary precedent. *Id.* at 1374. Consequently, WesternGeco requested leave to file supplemental briefing regarding the proper legal standard to determine whether a party is a “real party in interest, or privy of the petitioner” under 35 U.S.C. § 315(b) and whether ION was a “real party in interest” or a “privy of” of PGS.

Notice at 1, ECF No. 107. We granted the request. Order at 2, ECF No. 108. STANDARDS OF REVIEW We review Board decisions using the standard set forth in the Administrative Procedure Act (APA), 5 U.S.C. § 706 et seq.

In *re Sullivan*, 362 F.3d 1324, 1326 (Fed. Cir. 2004) (citing *Dickinson v. Zurko*, 527 U.S. 150, 154 (1999)); see *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1080 (Fed. Cir. 2015). Under the APA, we must “hold unlawful and set aside agency action... not in 8 WESTERNGECO LLC v. ION

GEOPHYSICAL CORP. accordance with law [or]... without observance of procedure required by law.” 5 U.S.C. § 706.

We review the Board’s legal conclusions *de novo* but review for substantial evidence any underlying factual determinations. See *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1332 (Fed. Cir. 2016); *In re Giannelli*, 739 F.3d 1375, 1378–79 (Fed. Cir. 2014). Substantial evidence is “such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Consol.*

Edison Co. v. NLRB, 305 U.S. 197, 229 (1938); *In re Applied Materials, Inc.*, 692 F.3d 1289, 1294 (Fed. Cir. 2012). DISCUSSION WesternGeco contends that the Board’s decisions invalidating claims of the WesternGeco Patents are wrong on the merits and should be reversed. But WesternGeco argues we need not reach the merits because *Wi-Fi One* has made time-bar decisions under § 315(b) judicially reviewable, and, as a threshold matter, we should vacate and dismiss the petitions as time-barred.

In WesternGeco’s view, (1) ION was served with a patent infringement complaint well over a year before the IPR petitions were filed and unquestionably would have been time-barred from filing any petitions challenging the WesternGeco Patents had it not been joined with PGS’s petitions; and (2) PGS’s petitions should be time-barred because ION was a “real party in interest,” or “privy” of PGS.

Consequently, WesternGeco argues that the Board never should have instituted the requested IPRs because no party timely filed the petitions. 4 WesternGeco did not argue before the Board, nor does it argue here, that ION is barred from joining the IPRs pursuant to 35 U.S.C. § 315(c), provided the IPRs were properly instituted. J.A. 13436; see 35 U.S.C. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 9 I. Time Bar Under 35 U.S.C. § 315(b) A. Legal Standard for Privy Section 315(b) of the Leahy-Smith America Invents Act (AIA), Pub.

L. No. 112-29, § 3(b)(1), 125 Stat. 284, 287 (2011) provides that the USPTO may not institute an IPR where the petition “is filed more than 1 year after the date on which the petitioner, the real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.” 35 U.S.C. § 315(b) (emphases added).

For purposes of this appeal, WesternGeco focuses on privy as the key basis of its time-bar challenge, reasoning that privy is more expansive in the types of parties it encompasses compared to real party in interest. See Appellant’s Supp. Br. 8 n.5 (citing the USPTO Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,759 (Aug. 14, 2012) (hereinafter, “Trial Practice Guide”)).

Neither the AIA nor the Patent Act defines the statutory term “privy.” But “privy” is a well-established common-law term, and it is a “cardinal rule of statutory construction” that where Congress adopts a common-law term without supplying a definition, courts presume that Congress

“knows and adopts the cluster of ideas that were attached” to the term. *FAA v. Cooper*, 566 U.S. 284, 291–92 (2012); *Microsoft Corp. v. i4i P’ship Ltd.*, 564 U.S. 91, 103–04 (2011).

Where Congress adopts a term that is used in common law across multiple legal subjects, courts “cannot rely on any all-purpose definition but must con- § 315(b) (“The time limitation set forth in the preceding sentence shall not apply to a request for joinder under subsection (c).” (emphasis added)). 10 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* sider the particular context in which the term appears.” *Cooper*, 566 U.S. at 294.

5 The AIA’s legislative history supports adopting the common law meaning of privity. The proposed adminis- trative review procedures, including IPR, were intended to provide “quick and cost effective alternatives to litiga- tion.” H. REP. NO. 112-98, at 48 (2011). Another ex- pressed congressional goal was to “establish a more efficient and streamlined patent system that will improve patent quality[.]” *Id.* at 40.

At the same time, Congress recognized the importance of protecting patent owners from patent challengers who could use the new adminis- trative review procedures as “tools for harassment.” *Id.* (“While this amendment is intended to remove current disincentives to current administrative processes, the changes made by it are not to be used as tools for harass- ment or a means to prevent market entry through repeat- ed litigation and administrative attacks on the validity of a patent.”).

In particular, Congress observed that the then- existing inter partes reexamination regime at times 5 Considering that the context here involves an in- terpretation of the text of § 315(b), *WesternGeco’s* reliance on our assignor estoppel case law is misplaced. Assignor estoppel is an equitable doctrine that prevents a patentee who has assigned the rights to a patent (and those in privity with the assignor) from later contending that the patent assigned is a nullity.

Intel Corp. v. ITC, 946 F.2d 821, 836–38 (Fed. Cir. 1991). In contrast, privity in the context of the § 315(b) bar refers to whether the relation- ship between the party to be estopped and the party in the prior litigation is sufficient to conclude that the act of one should be attributed to the other.

In other words, assignor estoppel is about the consequences of a commer- cial transaction, rather than the effects of prior litigation. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 11 unfairly burdened patent owners in situations where a set of challengers coordinated reexamination attacks to tie up a patent in the administrative review process for an extended period.

S. REP. NO. 111-18 at 54–55 (2009) (“It is not uncommon for the competitors of a patent’s owner or licensee to coordinate their efforts and bring serial inter partes challenges to a patent, one after another, each raising a different set of prior art in its challenge.”).

To address this concern, Congress placed several restrictions on IPR petitioners. For example, it raised the substantive threshold standard that governs the Patent Office's institution of the agency's review process. Instead of requiring for IPRs, as for reexaminations, that a petitioner raise merely a "substantial new question of patentability," the AIA requires a showing of "a reasonable likelihood that" the challenger would prevail with respect to at least one of the claims challenged in the petition.

Compare 35 U.S.C. § 312(a) (2006) (repealed 2012), with id. § 314(a) (2012). The statute imposes other restrictions as well. A party cannot file an IPR petition against a patent after having already brought a declaratory judgment action challenging the validity of a claim of that patent. Id. § 315(a)(1). IPR is also barred for petitions filed more than one year after a party is served with a complaint alleging infringement of the patent.

See id. § 315(b). And following a final written decision in an IPR, the petitioner is estopped from continuing to challenge the validity of the patent claims subject to that decision based on any grounds that the petition "raised or reasonably could have raised during" the IPR. See id. § 315(e).

For § 315(b) and (e), these restrictions apply with equal force to an IPR petitioner, any "real party in interest" to that IPR, and any "privy of the petitioner." As one Senator observed, privity, as used in the AIA, "takes into account the 'practical situation,' and should 12 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. extend to parties to transactions and other activities relating to the property in question." 157 Cong.

Rec. S1376 (daily ed. March 8, 2011) (statement of Sen. Kyl); see also 154 Cong. Rec. S9987 (daily ed. Sept. 27, 2008) (statement of Sen. Kyl) ("The concept of privity, of course, is borrowed from the common law of judgments.").

The legislative history thus lends support to the conclusion that "privity" in § 315(b) should be given its common law meaning. Historically, common law definitions of privity were narrow and specific, denoting mutual succession or relationship to the same rights of property. See 18A Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 4449 & n.32 (2d ed.

2017). Over time, its common law meaning expanded: "The term 'privity,' however, has also come to be used more broadly, as a way to express the conclusion that nonparty preclusion is appropriate on any ground." Taylor v. Sturgell, 553 U.S. 880, 894 n.8 (2008) (citing 18A Wright & Miller § 4449, at 351–53 & n.33); Cal. Physicians' Serv. v. Aoki Diabetes Research Inst., 163 Cal. App.

4th 1506, 1521 (Cal. App. 2008). As the Trial Practice Guide observes: "The emphasis is not on a concept of identity of parties, but on the practical situation." 77 Fed. Reg. at 48,759 (quoting Cal. Physicians' Serv., 163 Cal. App. 4th at 1521).

The Trial Practice Guide further recognizes that “privity” has no universally-applicable common law definition. *Id.* “Privity is essentially a shorthand state- ment that collateral estoppel is to be applied in a given case.” *Id.* (quoting *Cal. Physicians’ Serv.*, 163 Cal. App. 4th at 1521). That is, the privity analysis seeks to deter- mine “whether the relationship between the purported ‘privy’ and the relevant other party is sufficiently close such that both should be bound by the trial outcome and related estoppels.” See *id.* Given that determining whether two parties may be in privity “is a highly fact- dependent question,” the Trial Practice Guide states the *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 13 Board will engage in a “flexible” analysis on a “case-by- case basis.” *Id.* In sum, these descriptions of the privity analysis in the Trial Practice Guide accurately reflect the common law considerations for a privity inquiry.

But, importantly, the reach of privity cannot extend beyond the limits of due process. In *Taylor v. Sturgell*, the Supreme Court observed that a person who was not a party to a suit generally has not had a “full and fair opportunity to litigate” the claims and issues settled in that suit. 553 U.S. at 894.

Because nonparty preclusion risks binding those who have not had a full and fair opportunity to litigate, the Supreme Court has cautioned that there is a general rule against nonparty preclusion, subject to certain exceptions. *Id.* at 892–93; see *Aspex Eyewear, Inc. v. Zenni Optical, Inc.*, 713 F.3d 1377, 1382 (Fed. Cir. 2013) (“A full and fair opportunity to litigate is the touchstone of any preclusion analysis.”); see also *Cal. Physicians’ Serv.*, 163 Cal. App.

4th at 1522 (“Notions of privity have been expanded to the limits of due process.”). As informed by *Taylor* and other cases, the standards for the privity inquiry must be grounded in due process. Turning back to the statute, the preclusive effect of § 315(b) extends to privies—i.e., beyond those who were parties to the prior lawsuit.

Because the rationale behind § 315(b)’s preclusion provision is to prevent successive challenges to a patent by those who previously have had the opportunity to make such challenges in prior litigation, the privity inquiry in this context naturally focuses on the relationship between the named IPR petitioner and the party in the prior lawsuit.

For example, it is im- portant to determine whether the petitioner and the prior litigant’s relationship—as it relates to the lawsuit—is sufficiently close that it can be fairly said that the petitioner had a full and fair opportunity to litigate the validi- ty of the patent in that lawsuit.

In other cases, it may be more relevant to determine whether the petitioner is simply serving as a proxy to allow another party to liti- 14 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* gate the patent validity question that the other party raised in an earlier-filed litigation. See *Taylor*, 553 U.S. at 895.

The Supreme Court in *Taylor* identified a non-exhaustive list of considerations where nonparty preclusion would be justified. *Id.* at 894–95. These considerations include: (1) an agreement to be bound; (2) pre-existing substantive legal relationships between the person to be bound and a party to the judgment (e.g., “preceding and succeeding owners of property”); (3) adequate representation by someone with the same interests who was a party (e.g., “class actions” and “suits brought by trustees, guardians, and other fiduciaries”); (4) assumption of control over the litigation in which the judgment was rendered; (5) where the nonparty to an earlier litigation acts as a proxy for the named party to relitigate the same issues; and (6) a special statutory scheme expressly foreclosing successive litigation by nonlitigants.

Id. With these principles in mind, we turn to WesternGeco’s challenge to the Board’s time-bar decision under § 315(b). B. WesternGeco’s Time-Bar Challenge As noted, WesternGeco’s time-bar challenge focuses on privity, rather than real party in interest. See Appellant Supp. Br. 8 n.5. WesternGeco argues that the scope of privity is more expansive than real party in interest, and that neither concept is limited to the question of “control” as an exclusive test for privity.

Id. In other words, the privity analysis is broader than simply inquiring whether PGS controlled or had an opportunity to control ION’s decisions in the ION patent infringement *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 15 litigation, or whether ION controlled or had an opportunity to control PGS’s decisions in the PGS-initiated IPRs. 6 We agree with WesternGeco that “control” is not the exclusive analytical pathway for analyzing privity; as described above, it is but one of a variety of considerations.

However, we disagree with WesternGeco’s assertion that the Board applied an unduly-restrictive test and focused only on control. To the extent the Board analyzed privity based on ION’s control over the PGS proceedings, it properly did so in response to WesternGeco’s advancement of a theory focusing primarily on control. See, e.g., J.A. 35 (summarizing WesternGeco’s control arguments); see also *Wi-Fi One, LLC v. Broadcom Corp.*, No. 2015-1944, 2018 WL 1882911 (Fed.

Cir. Apr. 20, 2018) (on remand by en banc court to merits panel, deciding merits of Wi-Fi One’s time-bar claim). 7 But where WesternGeco raised additional considerations, such as pre-existing legal relationships, the Board considered those arguments and found them unpersuasive. See, e.g., J.A. 33–38, 193–206. 6 We are unpersuaded by ION’s contention that WesternGeco waived its privity argument.

This issue was raised in both rounds of the IPR. The Board fully considered the circumstances surrounding the relationship between ION and PGS and made extensive fact findings. 7 In that remand decision, we found that the Board properly focused on the factors that the patent owner raised in its argument, i.e., whether the IPR petitioner had been in control of a prior litigation that challenged the validity of the patent.

Wi-Fi One, No. 2015-1944, 2018 WL 1882911, at *4, *5 n.3.. Wi-Fi One specifically affirmed the Board's understanding of a broader test to include "a number of circumstances in which privity might be found, including when the nonparty controlled the district court litigation." *Id.* at *4. 16 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. Substantial evidence supports the Board's finding that ION lacked the opportunity to control PGS's IPR petitions.

See Taylor, 553 U.S. at 894; Wi-Fi One, LLC v. Broadcom Corp., No. 2015-1944, 2018 WL 1882911, at *8 (noting control as a factor to determine privity). The Board found no evidence to suggest that ION directed, funded, controlled, or influenced the PGS IPR petitions. See J.A. 35–38, 198–99, 204–06. Nor is there evidence supporting WesternGeco's contention that ION used PGS as a proxy.

Id. The litigation history suggests that PGS filed its IPRs as a defensive measure in response to WesternGeco's lawsuit against PGS, rather than at ION's instruction. When ION tried to join the IPRs, PGS actively opposed the attempted joinder. Even when ION was joined, the PTO gave ION only spectator status. Moreover, ION did not disclose any prior art references to PGS in connection with the IPR proceedings, nor did it pay for PGS's IPRs.

The Board reasonably found that ION did not control or direct the IPR petitions. Further, ION and PGS are distinct and unrelated corporate entities represented by different counsel. J.A. 198. Nothing in the evidence shows that one has any control over the other. J.A. 198–203. Nor does the record show that PGS controlled or funded the prior litigation. Other than responding to a third-party subpoena issued by WesternGeco, PGS lacked any substantive involvement in the ION litigation.

J.A. 194–95. As a general proposition, we agree with the Board that a common desire among multiple parties to see a patent invalidated, without more, does not establish privity. J.A. 196, 203; see Trial Practice Guide, 77 Fed. Reg. at 48,760. Setting aside factors concerning control, we also see no reason to overturn the Board's determination that privity did not exist based on any of the other alleged considerations.

WesternGeco relies on the pre-existing business alliance between ION and PGS before the ION lawsuit commenced, as well as indemnity provisions WESTERNGECO LLC v. ION GEOPHYSICAL CORP. 17 contained in the purchase agreements for the product accused of infringing WesternGeco's patents. Appellant Supp. Br. 13–19.

As explained below, we agree with the Board that these factors are insufficient to make PGS and ION privies within the meaning of the statute. Regarding the pre-suit business alliance, the Board found that ION and PGS had a contractual and fairly standard customer-manufacturer relationship regarding the accused product. J.A. 203. This finding does not necessarily suggest that the relationship is sufficiently close that both should be bound by the trial outcome and related

estoppels, nor does it suggest, without more, that the parties were litigating either the district court action or the IPRs as proxies for the other.

As for the parties' legal relationship, the Board re-viewed the purchase agreements as well as relevant business correspondence between ION and PGS but did not find them adequate to establish privity. J.A. 35–36, 199–202. WesternGeco contends that ION is obligated to indemnify PGS and is thus a privy of PGS.

The Board, however, fully considered and reasonably rejected such a contention based on the ambiguous, undefined nature of the underlying agreements. J.A. 205–06. In particular, the 2008 Master Purchase Agreement between PGS and an ION subsidiary stated that the ION subsidiary “shall indemnify” PGS. J.A. 200. But it did not specify the meaning of “indemnify” as requiring ION or its subsidiary to pay for any litigation defense expenses or for any damages related to infringement.

Rather, the provision included options by the ION subsidiary to modify or replace the equipment if an infringement claim was made against PGS. *Id.* After reviewing the entire provision as a whole, the Board found that the evidence did not show any obligation of ION to defend PGS from a patent infringement lawsuit, reimburse or pay for a lawsuit, cover any damages liability for any adverse patent infringement verdict against PGS, or initiate an invalidity challenge in 18 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. one or more fora.

See J.A. 200–01. Moreover, as the Board observed, the communications between ION and PGS reveal a cordial, but arms-length negotiation over potential limited remedies available under the indemnity provisions. See J.A. 38, 201–02. None of the correspondence relating to the indemnity provision shows an expectation that ION would be responsible for stepping in, or otherwise protecting PGS from a patent infringement suit.

J.A. 36, 206. The Board reasonably found that the non-specific nature of the indemnification provisions here, combined with the parties' communications as to the scope of those provisions, did not obligate ION to protect PGS in the comprehensive way that WesternGeco alleges.

The Board also noted that the remedies may have been limited to options such as replacing or modifying a product found to have infringed a patent. We agree with the Board that such a circumscribed indemnity provision does not amount to a sufficiently-close relationship to warrant finding ION and PGS in privity.

Finally, WesternGeco points to ION and PGS's conduct in the aftermath of the ION jury trial to argue that their relationship is sufficiently close to trigger § 315(b)'s time-bar. Specifically, WesternGeco claims that ION and PGS continued meeting to discuss litigation strategy after the jury's verdict in the ION litigation. Appellant Supp. Br. 16.

The evidence, however, only shows that ION's counsel made two brief inquiries of PGS, one of which PGS ignored. J.A. 4085. The other was a single, half-hour phone call between PGS and ION as to whether WesternGeco had disputed the prior art status of a particular reference during the ION trial, J.A. 4083–86, during which the attorneys did not even discuss the substance of the reference, J.A.

4084. These communications do not compel a reversal of the Board's findings about the parties' arms-length relationship. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 19 For these reasons, we affirm the Board's conclusion that PGS and ION are not privies within the meaning of § 315(b). 8 Substantial evidence supports the Board's conclusion that ION's relationship with PGS is not sufficiently close such that the ION proceeding would have given PGS a full and fair opportunity to litigate the validity of the claims of the WesternGeco Patents.

Accordingly, the petitions are not barred under 35 U.S.C. § 315(b). 9 8 To the extent that WesternGeco makes a separate argument regarding real party in interest, that argument merely relies on the same or a subset of considerations we have discussed concerning privity and fails for similar reasons. 9 WesternGeco also argues that we should remand for additional discovery if we have "substantial doubt" about whether PGS would be time-barred under § 315(b), Appellant Supp. Br.

19; see 37 C.F.R. § 42.51(b)(2) (authorizing additional discovery when it is "in the interests of justice"), but we do not. To the extent WesternGeco asks for review of the Board's denial of its initial request for additional discovery, which is reviewed for abuse of discretion, see *Ultratec, Inc. v. CaptionCall, LLC*, 872 F.3d 1267, 1272 (Fed. Cir. 2017), we find no abuse.

The Board considered the discovery already provided to WesternGeco and reasonably found no evidence to suggest that additional discovery would produce agreements with any relation to the ION litigation, the DigiFIN product, or obligations on the part of ION to defend or indemnify PGS. J.A. 34–39, 206–11. PGS responded to two sets of interrogatories, J.A. 4077, 5417, and produced the Master Purchase Agreement, J.A.

5396, along with related business correspondence, J.A. 4119–33. The Board found that the interrogatory responses unambiguously stated that PGS had made no claim or demands to ION for indemnity 20 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP. II. Merits* Having decided that PGS's IPR petitions were not statutorily barred by § 315(b), we turn to the merits of WesternGeco's appeal.

A. The '607 Patent The only merits issue on appeal for the '607 Patent is the construction of the claim term "predicting positions." The Board construed this term to mean "estimating the actual locations" of streamer positioning devices. J.A. 54–60, 226–32. By contrast, WesternGeco's proposed construction requires the prediction to be performed in a particular way—using

“behavior-predictive model-based control logic.” *Id.* After considering the intrinsic evidence, we agree with the Board’s construction.

Claim 1, which includes the step of “predicting positions of at least some of the streamer positioning devices,” is representative. It recites: 1. A method comprising: (a) towing an array of streamers each having a plurality of streamer positioning devices there along; (b) predicting positions of at least some of the streamer positioning devices; (c) using the predicted positions to calculate desired changes in position of one or concerning the challenged patents.

See J.A. 210 (citing J.A. 4090). The Board further worked with the parties to limit discovery in accordance with the parties’ agreement. J.A. 1116. On this record, the Board did not abuse its discretion in concluding that additional discovery was not justified. J.A. 365–68. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 21 more of the streamer positioning devices; and (d) implementing at least some of the desired changes. ’607 Patent, claim 1 (emphasis added).

The Board gives “[a] claim... its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b) (2015). A specification “includes both the written description and the claims” of the patent.

In *re Packard*, 751 F.3d 1307, 1320 n.11 (Fed. Cir. 2014). A patent’s specification, together with its prosecution history, constitutes intrinsic evidence to which the Board gives priority when it construes claims. See *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297–98 (Fed. Cir. 2015), overruled on other grounds by *Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed.

Cir. 2017) (en banc). We review the PTAB’s assessment of the intrinsic evidence de novo. See *id.* The plain language of the claim does not mention a “behavior predictive” model or require a specific type of prediction scheme.

As the Board noted, the word “predict” itself does not impart any dynamic characteristic to the limitation as whole. J.A. 229. Although the claim limits what must be predicted (positions of at least two streamer positioning devices), it imposes no limit on how those positions are predicted.

The Board’s construction comes directly from the ’607 specification, which discloses that, because of time delays inherent in measuring positions, “the global control system 22 runs position predictor software to estimate the actual locations of each of the birds 18 [i.e., streamer positioning devices].” ’607 Patent col. 4, ll. 51–55; J.A. 56, 227.

The specification thus explains that its system runs “position predictor software” to predict the positions of the streamer positioning devices. See *Phillips v. AWH Corp.*, 22 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 415 F.3d 1303, 1315 (Fed. Cir. 2005) (“[T]he specification

‘is always highly relevant to the claim construction analysis’ and is ‘the single best guide to the meaning of a disputed term.’” (citation omitted)); cf. J.A.

15688 (WesternGeco’s expert acknowledging that construing the limitation in accordance with this portion of the specification was “not unreasonable”). To support its position, WesternGeco relies on a sentence in the specification that states, “[t]o compensate for these localized current fluctuations, the inventive control system utilizes a distributed processing control architecture and behavior-predictive model-based control logic to properly control the streamer positioning devices.” ’607 Patent col.

4, ll. 10–14. A review of the preceding and following paragraphs, however, reveals that this passage describes a preferred embodiment. *Id.* at col. 3, ll. 56–64; col. 4, ll. 15–27. It is well established that claims are not limited to preferred embodiments, unless the specification clearly indicates otherwise. *Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed.

Cir. 2010) (“[T]his court has repeatedly cautioned against limiting claims to a preferred embodiment.”). Nothing in the ’607 specification provides such an indication. For these reasons, we affirm the Board’s construction of “predicting positions.” Because that construction is the only appealed issue as to the ’607 Patent, we affirm the Board’s finding that claims 1 and 15–23 of the ’607 Patent are unpatentable.

B. The ’520 Patent WesternGeco makes two challenges to the Board’s unpatentability rulings for the ’520 Patent: (1) the Board’s construction of “control mode” is overbroad; and (2) the Board’s finding that the prior art disclosed or suggested the claimed “feather angle control mode” is legally flawed. Neither is persuasive. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 23 1.

Construction of “Control Mode” The challenged claims recite a control system “configured to operate in one or more control modes.” ’520 Patent, claims 1, 18. The Board construed “control mode” to mean “operational state.” J.A. 307.

The Board’s construction noted that the specification did not define “control mode” and looked further to a computer dictionary for its construction. J.A. 306–07. According to WesternGeco, the proper construction of “control mode” should be “a goal-oriented, automatic configuration.” Appellant Br. 43.

For support, WesternGeco cites a passage in the specification describing three control modes: feather angle, streamer operation, and turn control. See ’520 Patent col. 10, ll. 27–60. WesternGeco contends that the description of each of these control modes requires steering the streamers in an automated and coordinated manner.

The passage recited by WesternGeco, however, does not make it proper to read limitations like “goal-oriented” or “automatic” into the term “control mode.” As the Board noted, any operation of

a computer system or program would have a goal or desired result, so injecting “goal- oriented” to the construction adds nothing meaningful. J.A. 114. Also, the specification does not make clear that a control mode must be automatic.

Indeed, the words “automated” and “automatic” do not appear anywhere in the claims or the written description addressing “control mode.” Further, there is evidence calling into question whether the feather angle mode necessarily involves automatic operations. See J.A. 114, 306, 11251 ¶ 34, 20450 ¶ 34. That certain aspects of the feather angle mode can operate manually further undermines WesternGeco’s assertion that the specification’s disclosure of three control modes requires adding “automatic” into the “control mode” construction.

Accordingly, the Board 24 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* correctly declined to read WesternGeco’s unsupported limitations into the claims. 10 2. The Board Correctly Found that the Workman Reference Renders the Feather Angle Mode Obvious WesternGeco next challenges the Board’s decision to cancel the claims directed to “feather angle mode” (claims 2, 3, 5, 19, and 22) as obvious over U.S. Patent No. 5,790,472 (Workman).

Workman discloses a method for controlling the position and shape of marine seismic streamer cables towed by a vessel. The “feather angle mode” in the ’520 Patent refers to “a control mode that attempts to keep each streamer in a straight line offset from the towing direction by a certain feather angle.” J.A. 111. According to PGS’s expert, Dr. Brian Evans, a configuration with no feather angle means that the streamers are linear and parallel to each other behind a boat.

10 In PGS III, the Board held that, even applying WesternGeco’s construction of “control modes,” it did not discern “a substantive difference between the claims and the prior art.” *Petroleum Geo-Services Inc. v. WesternGeco LLC*, 2015 WL 10380984, at *10. WesternGeco does not contest that holding on appeal. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 25 J.A. 20254.

If there is a cross-current, the streamers may drift and become offset from the towing direction of the vessel. This phenomenon is known as “feathering.” The extent to which the streamers become offset from the towing direction of the vessel is known as the “feather angle.” In other words, the streamers, while organized so as to be in parallel with each other, are collectively “off- set” at a small angle from the direction of the ship towing the streamers.

26 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* J.A. 20255. We review the Board’s ultimate determination of obviousness de novo and its underlying factual findings for substantial evidence. *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1380 (Fed. Cir. 2016). A patent claim is unpatentable “if the differences between the subject matter sought to be patented 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 [skilled artisan].” 35 U.S.C. § 103(a) (2006).

The Board found that one of ordinary skill in the art would have been motivated to modify Workman's control system to implement a feather angle mode threshold parameter and would have had a reasonable expectation of success. J.A. 126–31.

Although Workman does not disclose a feather angle, the Board credited passages 11 Workman discloses a “straight and parallel configuration,” meaning that the streamers are linear and parallel to each other. The streamers are also in-line with *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 27 from Workman and expert testimony that explained why one of skill in the art would want to control and maintain consistent separations between streamers during seismic surveys.

For example, it was well recognized that entanglement of the streamers was a significant and known problem. J.A. 127–28. A consistent separation was thus important to optimize efficient seismic data collection. *Id.* The Board also explained why prescribing a specific offset “feather angle” value to the streamers' positioning determination system would have been apparent to one of skill in the art confronting the challenge of towing streamers through cross-currents.

For example, it credited Workman for evidence that noise produced by streamer positioning devices was a well-known problem to be avoided or minimized. J.A. 130. It also cited expert testimony by PGS's expert witness, Dr. Evans, that when ocean cross-currents offset the streamers from the line of survey (e.g., by five degrees), attempting to reposition the streamers to a zero-degree feather angle against the current may create too much hydrophone noise, which impairs data quality.

Id. Additionally, Dr. Evans testified that one of skill in the art would need to match feather angles in subsequent surveys of the geographic area to obtain reliable 4D survey data. J.A. 20354–55. The Board found his reasoning to be persuasive and found that a skilled artisan would have been motivated to use a specific feather angle for streamer positioning to maintain data collection quality.

J.A. 130–31. Further, the Board found that Workman discloses a control system that uses various threshold parameters to control the positions of the streamers and that it would have been possible to adapt Workman so that its control system could include a the towing direction, which is essentially a configuration with a zero-degree feather angle. J.A. 501 (Workman Fig.

1); J.A. 325–26; see J.A. 127. 28 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* parameter that measured the feather angle between streamers. J.A. 128. Viewed collectively, substantial evidence supports the Board's conclusion that the skilled artisan would have been motivated to modify Workman to include a feather angle threshold parameter with a reasonable expectation of success.

WesternGeco objects to the Board's conclusion as impermissible hindsight. That argument lacks force in this case. PGS's expert testified from the perspective of one of ordinary skill in the art as of the priority date, and WesternGeco identifies nothing to suggest that his testimony or the other evidence cited by the Board invoked facts unavailable to the skilled artisan as of the priority date.

J.A. 11107, 20340–61. As discussed, substantial evidence before the Board shows that one of ordinary skill would have been motivated to modify Workman to attempt to keep streamers straight and parallel, whether in a zero or non-zero feather angle mode, with a reasonable expectation of success.

The Board appropriately relied on the prior art and expert testimony about how the skilled artisan would have modified the prior art. Substantial evidence supports its obviousness determination. C. The '967 Patent WesternGeco challenges the Board's claim construction, anticipation, and obviousness determinations regarding the "global control system" limitation of the claims at issue in the '967 Patent.

The '967 Patent relates to distributed-control systems that apportion operational command between (1) a global control system onboard the towing vessel and (2) local control systems within each streamer positioning device on a streamer. '967 Patent col. 10, ll. 18–21. According to the specification, the global control system monitors the positions of the streamers and provides desired forces or WESTERNGECO LLC v. ION GEOPHYSICAL CORP. 29 desired position information to the local control system.

Id. at col. 10, ll. 18–29. The local control system within each streamer positioning device (e.g., "bird") is responsible for adjusting the bird's wing splay angle to rotate the bird to the proper position and for adjusting the wing common angle to produce the magnitude of total desired force required. Id. Claims 1, 4, and 15 all recite a "global control system." Claim 1 is illustrative: 1.

A method comprising: (a) towing an array of streamers each having a plurality of streamer positioning devices there along, at least one of the streamer positioning devices having a wing; (b) transmitting from a global control system location information to at least one local control system on the at least one streamer positioning devices having a wing; and (c) adjusting the wing using the local control system. '967 Patent, claim 1 (emphasis added).

1. Construction of "Global Control System" As an initial matter, WesternGeco argues that the Board's construction of "global control system" changed midstream. But the record shows that WesternGeco is actually the one who changed course, urging a different construction during the IPR. J.A. 1213, 14314.

The chronology is undisputed. Before the institution decisions, both PGS and WesternGeco agreed that the term "global control system" should be interpreted as "a control system that sends

commands to other devices in a system (e.g., local control system).” J.A. 1420; see J.A. 1155, 30 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. 3424.

In the patent owner response, WesternGeco revised its proposed construction to “a control system configured to coordinate all streamer positioning devices in the array.” J.A. 1213, 14314. Upon considering the arguments from both sides, the Board construed the term as “a control system capable of overseeing and affecting the array of streamers and streamer positioning devices.” J.A.

18, 171. This construction was close to that requested by WesternGeco, but did not require controlling all streamer positioning devices in the array. J.A. 162–71. Contrary to WesternGeco’s argument, the Board was permitted to issue a new construction in the final written decision given that claim construction was a disputed issue during the proceedings. See *Intellectual Ventures II LLC v. Ericsson Inc.*, 686 F. App’x 900, 905 (Fed.

Cir. 2017). Moreover, the Board is not bound to adopt either party’s preferred articulated construction of a disputed claim term. See *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1556 (Fed. Cir. 1995); see also *Home-land Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1376 (Fed. Cir. 2017).

The facts in this case can be distinguished from *SAS Institute, Inc. v. ComplementSoft, LLC*, 825 F.3d 1341, 1351 (Fed. Cir. 2016), rev’d and remanded on other grounds, *SAS Institute, Inc. v. Iancu*, --- S. Ct. ---, No. 16- 969 (Apr. 24, 2018), on which WesternGeco relies.

In *SAS*, the Board construed the relevant term in its institution decision, but in the final written decision sua sponte issued and adopted a significantly different construction, even though neither party had disputed the Board’s original construction and premised their arguments in the proceeding on that construction.

Because the appellant had no notice that the Board’s construction could change or an opportunity to address the new construction, this court vacated the decision and remanded on that issue. *Id.* at 1351–53. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 31 Here, by contrast, the construction of “global control system” became disputed when WesternGeco changed course in its patent owner response.

Having put it at issue, WesternGeco was well aware that the Board could alter its construction in the final written decision. See *Genzyme Therapeutic Prods. v. Biomarin Pharm. Inc.*, 825 F.3d 1360, 1367 (Fed. Cir. 2016) (finding no APA violation where the parties “received adequate notice of the issues that would be considered, and ultimately resolved”). Further, even though the Board’s ultimate construction is not identical to either party’s proposed construction, the differences are not so materially different as to raise potential due process concerns.

WesternGeco does not contend that it would have presented different arguments had it known what the final construction would be. Moreover, the Board's construction of "global control system" did not affect the unpatentability outcome because the Board concluded that the challenged claims were unpatentable even under WesternGeco's construction requiring control of "all" streamer positioning devices.

J.A. 182 ("Even assuming the appropriate claim construction was limited to 'all' streamer positioning devices, which it is not, this would not serve to distinguish the claimed invention from the '636 PCT."). Thus, the Board's decision to adopt a construction between those offered by the parties did not prejudice WesternGeco, and we perceive no reason to overturn the Board's construction of this term.

2. The Board's Unpatentability Findings Based on the '636 PCT Are Not Erroneous The Board found claims 1, 4, and 15 of the '967 Patent to be unpatentable under 35 U.S.C. §§ 102 and 103 in view of WO 98/28636 (the '636 PCT).

The '636 PCT discloses a streamer positioning device for controlling the position of a marine seismic streamer as it is towed behind a boat in a streamer array. 32 WESTERNGECO LLC v. ION GEOPHYSICAL CORP. WesternGeco challenges the Board's unpatentability findings on two separate grounds.

First, it argues that the '636 PCT reference does not explicitly disclose a "global control system" and that the Board improperly mixed the '636 PCT's background discussion with its detailed description of the invention to find that this reference teaches all limitations of claims 1, 14, and 15.

Second, it contends that the Board improperly relied on a purported "admission" in the '967 Patent about the '636 PCT rather than relying solely on the '636 PCT itself. Both arguments fail. We see no error in this case from the Board's use of a reference's background to furnish context for how a skilled artisan would understand the reference's disclosed embodiments.

Here, the '636 PCT background discloses "marine seismic streamers," towed in an array, each of which has a plurality of streamer positioning devices (birds). J.A. 485. That background, as the Board found, provided context for the ensuing disclosures of the control systems on individual birds, "for controlling the position of a marine seismic streamer," with each bird on a streamer that "includes a control line" configured "to receive control signals." J.A.

485, 487. The Board also found a link between the background disclosure of an array of streamers and the later disclosures of control lines on each streamer that control the local systems on each bird; further, this link would have been apparent to one of skill in the art. J.A. 177–78.

As the Board concluded, the '636 PCT discloses an overall distributive control system comprising a local control system in each bird dispersed along the streamers and a separate global "position determining system" capable of controlling the birds within the array by transmitting appropriate location information along the disclosed control lines. J.A. 176–80.

Collectively, this provides substantial evidence that the '636 PCT anticipates claims 1, 4, and 15 of the '967 Patent. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 33 The Board's consideration of the '967 Patent's characterization of the prior art was also proper. "A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1570 (Fed.

Cir. 1988); see *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007). Here, the Board reviewed the disclosure of the '636 PCT and concluded that it teaches the claimed distributed control system.

The Board's finding was grounded in the '636 PCT's disclosure of a global "positioning determining system" and a local control system on each bird. See J.A. 176. The Board then found that the '967 Patent's characterization of the '636 PCT reinforced the conclusion that the '636 PCT anticipated the claims. J.A. 178.

As we have explained, substantial evidence supports the Board's determination that the '636 PCT anticipates the challenged claims of the '967 Patent. See *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (affirming anticipation determination where a person of skill in the art would "at once envisage the claimed arrangement or combination").

But, even if the '636 PCT does not anticipate, its disclosure, as interpreted by the credited and undisputed testimony of PGS's experts, would have rendered obvious the claimed combination of local control systems on birds with a global control system that controls the birds. See J.A. 1044–46, 1443–44 (explaining how a person of ordinary skill would have been motivated to adapt the '636 PCT so that it employed a global control system).

The evidence regarding the meaning of the '636 PCT disclosures and motivations of the skilled artisan is sufficient to support the Board's alternative finding of obviousness. 34 *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* D. Objective Indicia of Nonobviousness Lastly, WesternGeco argues that the Board improperly disregarded objective evidence of nonobviousness for the '967 and '520 Patents.

As the patent owner, WesternGeco bears the burden of showing a sufficient nexus between the claimed invention and any objective evidence of nonobviousness. *ABT Sys., LLC v. Emerson Elec. Co.*, 797 F.3d 1350, 1361–62 (Fed. Cir. 2015).

The Board found that WesternGeco failed to establish a nexus between the claims at issue and the purported objective indicia of nonobviousness. 12 Specifically, it found the testimony of WesternGeco’s witness, Robin Walker, insufficient to establish nexus because it was directed to “lateral steering technology,” not the inventions at issue. J.A. 32–33, 86–87, 133–34.

The Board also credited the patents’ inventor, who admitted that he did not invent lateral steering, which was in the prior art. J.A. 334. Further, Mr. Walker testified that the purchasers of WesternGeco’s commercial product, Q-Marine, had no interest in the technical features actually recited in the claims of the WesternGeco Patents. J.A. 14749–50. Based on this evidence, even if a nexus existed, the Board concluded that the evidence was insufficient to overcome the strong showing of obviousness demonstrated by the Petitioner.

J.A. 33, 88, 134, 192, 271, 337. 12 WesternGeco asserts that nexus is presumed for a commercial embodiment like DigiFIN, but provides no analysis. To establish a presumption of a nexus, the patentee must show that the “product ‘embodies the claimed features, and is coextensive with them.’” *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir.

2018) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000)). WesternGeco has not made this showing. *WESTERNGECO LLC v. ION GEOPHYSICAL CORP.* 35 Substantial evidence supports the Board’s findings. Any commercial success enjoyed by the Q-Marine or the DigiFIN product “is only significant if there is a nexus between the claimed invention and the commercial success.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed.

Cir. 2006). Here, WesternGeco relied on the testimony of Mr. Walker, who did not determine whether the Q-Marine or DigiFIN products embodied the challenged claims. J.A. 2895. Further, WesternGeco has not shown that the driving force behind the product sales was a direct result of the unique characteristics of the claimed inventions. See *In re DBC*, 545 F.3d 1373, 1384 (Fed.

Cir. 2008) (finding no nexus absent evidence that “the driving force behind [the allegedly successful product’s sales] was the [claimed invention]”). Even if WesternGeco had satisfied its burden of showing a sufficient nexus between the claimed invention and its objective evidence of nonobviousness, the evidence does not overcome the strong showing of obviousness in this case.

See *Sud-Chemie, Inc. v. Multisorb Techs., Inc.*, 554 F.3d 1001, 1009 (Fed. Cir. 2009).
CONCLUSION We have considered WesternGeco’s remaining arguments and find them unpersuasive. The Board properly held that ION is not a real party in interest or privy of PGS.

Thus, the statutory time bar does not apply. On the merits, we find that, for each of the WesternGeco Patents, the Board correctly interpreted the claims, and substantial evidence supports the Board’s unpatentability findings.

For these reasons, the Board's decisions regarding the WesternGeco Patents are AFFIRMED

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