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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PETROLEUM GEO-SERVICES INC.,
Petitioner,

v.

WESTERNGECO LLC,
Patent Owner.

Case IPR2014-01477
Patent 7,080,607 B2

Before BRYAN F. MOORE, SCOTT A. DANIELS, and BEVERLY M. BUNTING, *Administrative Patent Judges.*

DANIELS, *Administrative Patent Judge.*

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

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I. INTRODUCTION

A. Background

Petroleum Geo-Services ("Petitioner," or "PGS") filed a Petition to institute an *inter partes* review of claims 16–23 of U.S. Patent No. 7,080,607 B2 ("the '607 patent"). Paper 1 ("Pet."). WesternGeco LLC ("Patent Owner") timely filed a Preliminary Response. Paper 12 ("Prelim. Resp."). We instituted trial in *Petroleum Geo-Services, Inc., v. WesternGeco L.L.C.*, Case IPR2014-01477, for claims 16–23 of the '607 patent on certain grounds of unpatentability alleged in the Petition. Paper 18 ("Decision to Institute" or "Inst. Dec."). Patent Owner, in due course, filed a Response. Paper 45 ("PO Resp." or "Response"). Petitioner subsequently filed a Reply. Paper 47 (Reply).[1]

An oral hearing was held on November 10, 2015. A transcript of the hearing is included in the record. Paper 64 ("Tr.").

The Board has jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has proven, by a preponderance of the evidence, that claims 16–23 of the '607 patent is unpatentable.

B. Additional Proceedings

Lawsuits involving the '607 patent presently asserted against Petitioner include *WesternGeco LLC v. Petroleum Geo-Services, Inc.*, 4:13-cv-02725 (the "*PGS* lawsuit") in the Southern District of Texas and

[1] We refer here to the paper numbers of the redacted versions of Patent Owner's Response and Petitioner's Reply.

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WesternGeco LLC v. ION Geophysical Corp., 4:09-cv-01827 (the "*ION* lawsuit") also in the Southern District of Texas, and *WesternGeco LLC v. ION Geophysical Corp.*, 13-1527 (Fed. Cir.). Pet. 8.

The '607 patent was also challenged in *Petroleum Geo-Services Inc., v. WesternGeco LLC* (IPR2014-00688) (PTAB Aug. 5, 2014) (the "first PGS IPR"); and *ION Geophysical Corporation v. WesternGeco LLC* (IPR2015-00567) (PTAB Jan. 14, 2015).[2]

C. The '607 Patent

The '607 patent (Ex. 1001), titled "SEISMIC DATA ACQUISITION EQUIPMENT CONTROL SYSTEM," generally relates to a method and apparatus for improving marine seismic survey techniques to more effectively control the movement and positioning of marine seismic streamers towed in an array behind a boat. Ex. 1001, 1:16–24. As illustrated in Figure 1 of the '607 patent reproduced below, labeled "Prior Art," a seismic source, for example air gun 14, is towed by boat 10 producing acoustic signals, which are reflected off the earth below. *Id*. at 1:24–30. The reflected signals are received by hydrophones (no reference number) attached to streamers 12, and the signals "digitized and processed to build up a representation of the subsurface geology." *Id*. at 1:31–33.

[2] IPR2015-00567 was joined with IPR2014-00688 and a Final Written Decision in that proceeding was mailed by the Board on December 15, 2015.

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Fig.1.
Prior Art

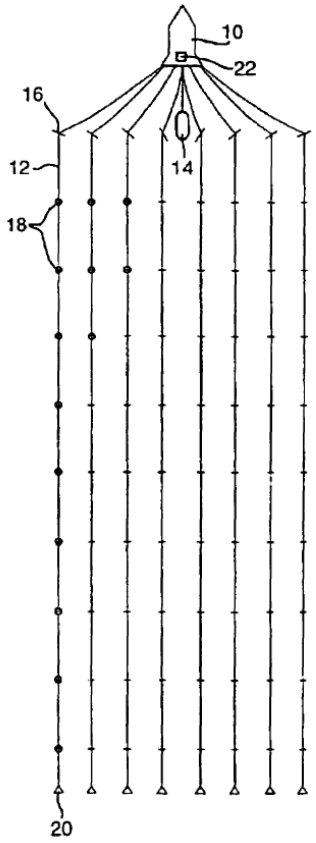

Figure 1, reproduced above, depicts an array of seismic streamers 12 towed behind the vessel. In order to obtain accurate survey data, it is necessary to control the positioning of the streamers, both vertically in the water column, as well as horizontally against ocean currents and forces, which can cause the normally linear streamers to bend and undulate and, in some cases, become entangled with one another. *Id.* at 1:42–2:16.

As depicted by Figure 1, each streamer 12 is maintained in a generally linear arrangement behind the boat by deflector 16 which horizontally positions the end of each streamer nearest the vessel. Drag buoy 20 at the

end of each streamer farthest from the vessel creates tension along the streamer to maintain the linear arrangement.

Additionally, to control the position and linear shape of the streamers, a plurality of streamer positioning devices, called "birds" 18, are attached along the length of each streamer.[3] *Id.* at 3:47–49. The birds are horizontally and vertically steerable and control the shape and position of the streamer in both vertical (depth) and horizontal directions. *Id.* at 3:49–55. The bird's function is usually to maintain the streamers in their linear and parallel arrangement, because, when the streamers are horizontally out of position, the efficiency of the seismic data collection is compromised. *Id.* at 2:5–7. The most important function of the birds, however, is to keep the streamers from tangling. *Id.* at 3:65–66.

Figure 2 of the '607 patent, reproduced below, illustrates a preferred embodiment of bird 18 as it relates to the described invention.

[3] Although the term "streamer positioning device" is inclusive of other structures besides a "bird," unless otherwise noted in this Decision, we use the terms "birds," "SPD," and "streamer positioning devices" interchangeably.

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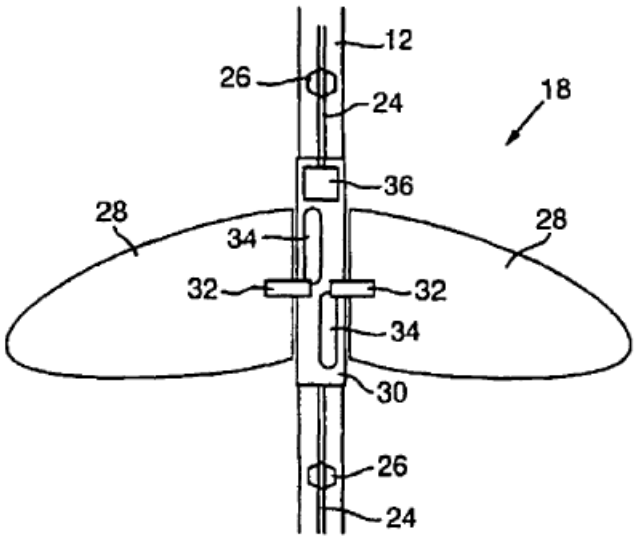
Fig.2.



As depicted by Figure 2 of the ’607 patent, reproduced above, when the streamers are towed, birds 18 are capable of controlling their own position, and hence the position of streamers 12, in both horizontal and vertical directions. *Id.* at 5:34–36. The ’607 patent explains that “[t]he bird 18 preferably has a pair of independently moveable wings 28 that are connected to rotatable shafts 32 that are rotated by wing motors 34 and that allow the orientation of the wings 28 with respect to the bird body 30 to be changed.” *Id.* at 5:43–47.

The invention described in the ’607 patent relies on global control system 22 located on or near the vessel to control the birds on each streamer to maintain the streamers in their particular linear and parallel arrangement. *Id.* at 3:56–60. The control system is provided with a model (desired) position representation of each streamer in the towed streamer array, and

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also receives (actual) position information from each of the birds. *Id.* at 4:15–19. The control system uses the desired and actual position of the birds to "regularly calculate updated desired vertical and horizontal forces the birds should impart on the seismic streamers 12 to move them from their actual positions to their desired positions." *Id.* at 4:28–34.

D. Illustrative Claim

Claims 16–23 are dependent directly or indirectly upon independent claim 15, claims 15 and 16 are reproduced below:

> 15. An array of seismic streamers towed by a towing vessel comprising:
> (a) a plurality of streamer positioning devices on or inline with each streamer;
> (b) a prediction unit adapted to predict positions of at least some of the streamer positioning devices; and
> (c) a control unit adapted to use the predicted positions to calculate desired changes in positions of one or more of the streamer positioning devices.
>
> 16. Apparatus as claimed in claim **15**, in which each streamer positioning device has a first hydrodynamic deflecting surface and a second hydrodynamic deflecting surface, said first deflecting surface and said second deflecting surface being independently moveable to steer the streamer positioning device laterally and vertically.

Ex. 1001, 12:26–40.

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E. The Alleged Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable on the following specific grounds.[4]

References	Basis	Claims Challenged
'636 PCT[5] and Gikas[6]	§ 103	16 and 17
'636 PCT, Gikas, and Spink[7]	§ 103	18–20
'636 PCT, Gikas, Spink, and '394 PCT[8]	§ 103	21–23

II. CLAIM CONSTRUCTION

A. Legal Standard

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015) ("Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA," and "the standard was properly adopted by PTO regulation."), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 980 (mem.) (2016). Claim terms are given their ordinary and

[4] Petitioner supports its challenge with Declarations of Dr. Brian J. Evans, Ph.D. (Ex. 1002) ("Evans Decl.") and Dr. Jack H. Cole, Ph.D. (Ex.1003) ("Cole Decl."). *See infra*.
[5] Ex. 1013, WO 98/28636 (published July 2, 1998).
[6] Ex. 1006, V. Gikas et al., *A Rigorous and Integrated Approach to Hydrophone and Source Positioning during Multi-Streamer Offshore Seismic Exploration*, 77 THE HYDROGRAPHIC JOURNAL 11–24 (July 1995).
[7] Ex. 1058, U.S. Patent No. 3,560,912 (issued Feb. 2, 1971).
[8] Ex. 1059, WO 97/11394 (published March 27, 1997).

customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). If the specification "reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor's lexicography governs." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (citing *CCS Fitness, Inc. v. Brunswick Corp*., 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). If a feature is not necessary to give meaning to what the inventor means by a claim term, it would be "extraneous" and should not be read into the claim. *Id.*; *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). Only terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

We apply these general rules in construing the claims of the '607 patent.

In our Decision to Institute we construed several terms, determining that a "streamer positioning device," is "a device that positions a streamer as it is towed." Inst. Dec. 9–10. We determined that "means for determining the angular velocity of each streamer positioning device" as recited in claim 18 is: "a horizontal accelerometer and a vertical accelerometer, placed at

right angles with respect to one another and a vibrating rate gyro as described in the '607 patent, or their equivalents." *Id*. at 11. We also interpreted "cycle rate" as "the number of data sampling cycles a processing unit performs per unit of time." *Id*. at 12. Based on the full record developed during trial, we adopt those constructions for purposes of this Decision.

We further determined that "predict[ing] positions" means "estimating the actual locations." *Id*. at 10. Because Patent Owner argues for a different construction of this term, we re-analyze our construction, below, and also provide construction for the term "global control system" as recited in claims 19, 21, and 23.

B. Predict Positions

We determined in the Decision to Institute that "predict positions" recited in claim 15 means "estimating the actual locations."[9] Inst. Dec. 10. Patent Owner disagrees with this construction and contends that the broadest reasonable interpretation of "predict positions" is "determining positions using a behavior-predictive model." PO Resp. 5. Patent Owner argues that "[t]he intrinsic evidence requires that 'predicting positions' addresses the time lag between positional measurements and steering commands arriving at the streamer positioning device, as well as the forces acting on the streamer." *Id*. at. 5–6 (citing Ex. 1001, 4:8–14, 48–55, 5:4– 16; Ex. 2075 ¶¶ 40, 57, 69–70, 91–92.). Petitioner's position is that our construction in the Decision to Institute is correct. Reply 3.

[9] All of the limitations of claim 15 are included in the challenged claims 16–23 which depend therefrom.

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Patent Owner argues that the proper understanding of "predicting positions" begins with the plain and ordinary meaning of the word "predicting" as having a temporal aspect, which must be accounted for in the broadest reasonable interpretation. PO Resp. 6 (citing Ex. 2074). We agree with Patent Owner, at least to the extent that an ordinary meaning of the word "predict[ing]" can generally be understood as having a temporal aspect relating to the future. Patent Owner states further in their Response that:

> [p]redictive control as recited in claim 15 requires a prediction as to (1) where the streamer positioning device will be at the time when commands are received at the device and (2) taking into consideration the forces acting on the streamers, *i.e.* the behavior of the streamer array. (*See e.g.* Ex. 2075, ¶¶ 69–76, 93–94, 110.)

Id. First, we note that claim 15 does not recite "predictive control" as stated here by Patent Owner. *See* Ex. 1001, 12:26–34. Second, with respect to point (1), our claim construction accounts for exactly this temporal, i.e. future, aspect of "predicting." As explained in our Decision to Institute:

> the received position data of any bird 18 is old, i.e., not instantaneous, or current, but is used to estimate a position of bird 18, and assess the estimate as an actual position of bird 18.

Inst. Dec. 10. Our claim construction relies specifically on the nature of the temporal component described in the '607 patent specification which states "the global positioning system runs position predictor software to estimate the actual locations of each of the birds 18." Ex. 1001, 4:51–55. Based on the specification, the estimated "actual locations" recited in our construction is a future prediction relative to the old (measured) position data that takes into account the time delay, or lag, and as stated in Patent Owner's point (1) above. The "actual location" in our claim construction is "where the

streamer positioning device will be at the time when commands are received at the device" as contended by Patent Owner. PO Resp. 6. Regarding point (2), here Patent Owner argues that the broadest reasonable interpretation of "predict[ing] positions" must consider not only positional data, but also force data and behavior. *Id*. Patent Owner contends that the specification is clear that "predicting positions" requires "behavior prediction" and that "[b]ehavior prediction is more sophisticated than simply estimating the actual locations." *Id*. at 8–9 (citing Ex. 1001, 4:11–14. To support its position that a "behavior-predictive model" should be part of the construction Patent Owner draws our attention to certain portions of the specification that discuss control of the streamer positioning devices:

> the inventive control system utilizes a distributed processing control architecture and behavior-predictive model-based control logic to properly control the streamer positioning devices.

Ex. 1001, 4:11–14. Also,

> [t]he global control system 22 preferably maintains a dynamic model of each of the seismic streamers 12 and utilizes the desired and actual positions of the birds 18 to regularly calculate updated desired vertical and horizontal forces the bird should impart on the seismic streamers 12 to move them from their actual positions to their desired positions.

Id. at 4:28–34. And,

> [t]he global control system 22 preferably calculates the desired vertical and horizontal forces based on the behavior of each streamer and also takes into account the behavior of the complete streamer array.

Id. at 4:48–51. Using these specification examples, Patent Owner includes "behavior-predictive model" in its claim construction for "predict[ing]

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positions" as part of the overall dynamic model controlling the streamer array that "must take into account some model of the various forces acting on the array as a whole." PO Resp. 9–10 (citing Ex. 2075 ¶¶ 69–76, 110). We must take care, however, when reading a patent specification to interpret and understand the claims and requisite claim language in light of the disclosure, while not inappropriately importing variations and specific embodiments into a claim interpretation. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). ("Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim."). A claim construction analysis begins with, and is centered on, the claim language itself. *See Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). Claim 15, recites the limitation "predict positions." A plain meaning of the word "position" is "the point or area occupied by a physical object." MERRIAM WEBSTER ONLINE DICTIONARY, http://www.merriam-webster.com/dictionary/position (last visited Mar. 8, 2015). On its face, therefore, the word itself does not impart any dynamic characteristic to the limitation as a whole. The claims also do not recite the terms "dynamic model," "behavioral-predictive model," or "force." It is understood from a plain reading of the claims, that the "predicted positions" are used, for example as recited in claim 15 "by a control unit . . . to calculate desired changes in positions of one or more of the streamer positioning devices." This at least implies that to control the streamer positioning device some force will be imparted by the streamer positioning device based on the

control units' calculations. It does not however, express to the reader that such forces utilized in a dynamic or "behavior-predictive model," are required by the prediction unit to "predict positions." Addressing the specific portions of the '607 patent relied upon by Patent Owner, these examples discuss dynamic model, streamer and SPD behavior including, calculated forces and estimated actual locations of the SPD's as separate functional elements or components of a "global control system 22." *See e.g.* Ex. 1001, 4:48–55. The specification states explicitly that these are *preferred* embodiments. *Id*. "While . . . claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998) (citation omitted). Further, Patent Owner's construction would require the term "predict positions" to include a "behavior predictive model," a term that is recited only one time in the specification and without any specific definition, other than as "control logic to properly control the streamer positioning device." Ex. 1001, 4:16–20. We are not persuaded from the claim language itself or the written description of the '607 patent that the "behavior-predictive model" to control all the streamer positioning devices in the array should necessarily be read into "predict[ing] positions," as recited in claim 15.

Patent Owner relies upon the testimony of its Declarant, Dr. Michael Triantafyllou, in support of its position that "predicting positions" requires a behavior-predictive model. PO Resp. 5–6,10–12 (citing Ex. 2075 ¶¶ 40, 57, 69–70, 91–92). Dr. Triantafyllou has over 40 years of experience in the

field of marine vehicle dynamics and control. Ex. 2075 ¶ 1. He has a bachelor's degree in Naval Architecture and Marine Engineering, as well as a Master of Science and Mechanical Engineering, a Master's of Science in Ocean Engineering, and a Ph.D in Ocean Engineering from MIT. *Id*. at ¶ 2. Since 1979, Dr. Triantafyllou has been an MIT faculty member and professor, including Director of the Center for Ocean Engineering at MIT, as well as a visiting research scientist at the Woods Hole Oceanographic Institute. *Id*. ¶¶ 6, 9. We understand from Dr. Triantafyllou's testimony, that in a large array of towed seismic streamers, it is particularly helpful to synchronize all the streamer positioning devices that control the numerous parallel streamers, and "to continuously coordinate all the streamer positioning devices in the array, combined with a behavior-based predictive model, and then send commands to each local control system helps prevent the type of overcorrection that can increase the likelihood of streamer tangling." *Id*. ¶ 64. Although Dr. Triantafyllou's testimony is helpful in understanding how the specification of the '607 patent attempts to describe the preferred aspects of the invention disclosed therein, for example that the behavior-predictive model "uses past information and knowledge about the dynamics of a system to determine how that system configuration will change over time," his testimony does not explain why, as discussed above, we should interpret the claim term "predict positions" as requiring a preferred embodiment from the specification. Ex. 2075 ¶ 75, *see also* Ex. 1001, 4:28–29 (In an embodiment described in the specification "[t]he global control system 22 preferably maintains a dynamic model of each of the seismic streamers 12.") In the instant case, Patent Owner has not

brought any language from the specification to our attention where Patent Owner purported to be its own lexicographer and defined "predict[ing] positions" in a manner that requires a behavior-predictive model relying on dynamics of the system as a whole. It is well settled that "claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction." *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1381 (Fed. Cir. 2009).

To the extent the term "predict positions" needs any interpretation, we determine based on the specification, claim language, and evidence from the complete record before us, that under the broadest reasonable interpretation, and giving the words their plain and ordinary meaning consistent with the specification that, "predict positions" means "estimating the actual locations."

C. Calculate Desired Changes

Patent Owner contends that the broadest reasonable interpretation of "calculate desired changes" as recited in claim 15 is to "determine forces based on streamer and array behavior." PO Resp. 10–11. Patent Owner argues that this claim limitation "requires the desired changes to take into account not only the streamer on which the streamer positioning device is located, but also the complete streamer array." *Id*. We are not persuaded to read such a limitation into this claim phrase. First, in the context of claim 15, the complete phrase is, "calculate desired changes in positions." The plain meaning of "calculate" is essentially interchangeable with "determine," and thus we see no reason to clarify this aspect of the claim language. The

direct object of the verb "calculate" is "changes in position" of the SPD, and thus the proposed claim construction would substitute "forces based on streamer and array behavior" for "changes in position." The asserted claim construction, however, naturally expresses how changes in position are, or could be accomplished. For example, "force" acting on an object is, from a physics perspective, a different quantity than the "position" of the object. A certain force may cause a change in position but it is not the "change in position" itself. We are, therefore, not persuaded by the plain meaning of the claim language that "changes in position" is required to be limited to any particular causational definition or quantity. Patent Owner's claim construction relies upon preferred embodiments from the specification; for example, the specification states that "[t]he global control system 22 preferably calculates the desired vertical and horizontal forces based on the behavior of each streamer and also takes into account the behavior of the complete streamer array." *See Id*. at 11 (citing Ex. 1001, 4:48–51). Furthermore, to the extent that Patent Owner is relying on the "global control system 22" as predicting or calculating such forces, the specification includes an alternative embodiment where the global control system does not calculate the forces, but alternatively, "can transmit location information to the local control system 36 instead of force information." Ex. 1001, 6:38–39.

Accordingly, we determine based on the specification, claim language, and evidence from the complete record before us, that under the broadest reasonable interpretation, and giving the words their plain and ordinary meaning consistent with the specification, that the phrase

"calculating desired changes in position" needs no construction and should be accorded its plain and ordinary meaning.

D. Global Control System

Patent Owner contends that the broadest reasonable interpretation of "global control system" is "a control system configured to *coordinate all streamer positioning devices* in the array." PO Resp. 12–13 (emphasis added). Patent Owner argues that "[t]his construction is mandated by the claim language, specification, and the very purpose of the '607 invention." *Id.* at 15.

Patent Owner asserts that the proper understanding of "global control system" is dependent on the ordinary meaning that the word "global" would impart to one of ordinary skill in the art. *Id.* at 13. Patent Owner initially points to an ordinary meaning from the Webster's Third New International Dictionary (EX. 2068), defining "global" to mean "of, relating to, or constituting, an organic whole." *Id.* (citing Ex. 2068). Based on this dictionary definition, Patent Owner contends that in the context of a seismic survey vessel towing "an array of streamers" as recited in claim 15, to a person of ordinary skill in the art, "global" means "that the *entire* array of streamers were being controlled." *Id.* (citing Ex. 2075 ¶ 88) (emphasis added). Patent Owner's Declarant, Dr. Triantafyllou testifies also that

> [m]y understanding of a "global control system" stems from the use of the word "global." This term is specific. To a POSA, it means that the control system oversees and affects the entire system. It is aimed at ***coordinated*** control.

Ex. 2075 ¶ 88. In support of his testimony Dr. Triantafyllou points to the specification of the '607 patent for two examples of how coordinated control

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of the entire system can occur, e.g. by "delivering force values 'as separate values for ***each bird*** 18 on ***each streamer continuously*** during operation of the control system,'" (*Id.* (citing Ex. 1001, 5:20–23)); and also "that '[t]he global control system 22 preferably calculates the desired vertical and horizontal forces based on the behavior of each streamer and also takes into account the behavior of ***the complete streamer array***.'" *Id.* (citing Ex. 1001, 4:54–57). Based on such examples from the specification Dr. Triantafyllou concludes that "global control system" is not merely control of the entire array of streamers, but that it is "a control system configured to *coordinate all streamer positioning devices* in the array." *Id.* ¶ 90 (emphasis added).

We must take care when reading a patent specification to interpret and understand the claims and requisite claim language in light of the disclosure, while not inappropriately importing variations and specific embodiments into a claim interpretation. *See Superguide Corp.* 358 F.3d at 875. ("Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim."). The written description portions relied upon by Dr. Triantafyllou in support of Patent Owner's claim construction are preferred embodiments and examples in the '607 patent specification explaining *how* to control the streamers. For example, the specification states that "[i]n the *preferred* embodiment of the present invention, the global control system 22 monitors the actual positions of each of the birds 18." Ex. 1001, 4:15–17. Also, the '607 patent describes that "[t]he global control system 22 *preferably* calculates the desired vertical and horizontal forces based on the behavior of each streamer." *Id.* at 4:49–

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50. The '607 patent is replete with language and examples indicating alternative and exemplary embodiments, including the statement just prior to the claim listing that "[t]he present invention includes *any* novel feature or novel combination of features disclosed herein, either explicitly or implicitly." *Id.* at 11:12–14 (emphasis added). "[W]hile . . . claims are to be interpreted in light of the specification and with a view to ascertaining the invention, it does not follow that limitations from the specification may be read into the claims." *Comark* 156 F.3d at 1186. The use of the terms "preferably" and "preferred" in the above examples from the specification indicates that complete control of every bird may be desired and accomplished by the preferred embodiment, but it does not persuade us that control of *less* than all birds is excluded. We find no description or evidence in the specification, nor does Patent Owner point us to any language or evidence indicative of any intent, express or inherent, to limit the claimed invention to the preferred embodiments. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) ("Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.") (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1327 (Fed. Cir. 2002)).

Accordingly, we are not persuaded that any of the exemplary embodiments from the specification or Dr. Triantafyllou's interpretation based on such specific embodiments that allegedly "coordinate all streamer

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positioning devices" should be read into "global control system." *See* Ex. 2075 ¶ 90.

It is also not clear from Dr. Triantafyllou's testimony why one of ordinary skill in the art would limit the term global control system to "coordinate *all* streamer positioning devices in the array" as propounded in Patent Owner's claim construction. We are not apprised of any persuasive evidence in Dr. Triantafyllou's testimony that *all* the SPD's in the array must be coordinated in order to guide all the streamers and achieve a "global control system." Dr. Triantafyllou states in his Declaration that "[i]n the context of seismic surveying, a POSA would have understood that the global control system coordinated the control of the entire array of streamers." Ex. 2075 ¶ 88. Dr. Triantafyllou further testified during his deposition that in certain cases *less* than all the SPD's, and even less than all the streamers, would still be considered a global control system.

Q. Okay. Let's say now you have a streamer array and you've decided that you don't want to control one of the streamers in the middle. Is that encompassed by your definition of a global control system?

A. Depends. If you swear to God that you'll never use it and the like, I would have to think about it. But in principle, yes, because you have it there, you have a controller controlling everything.

Ex. 1117, 148:10–19.

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We find no persuasive reference or evidence in the specification or the claim language, nor do we find persuasive Dr. Triantafyllou's reliance on the preferred embodiments in the specification, that the meaning of "global" would have been understood by one of ordinary skill in the art as restricted to coordination of *all* SPD's in the array as Patent Owner's construction currently reads. Moreover, the language of the claim itself does not support the understanding that *all* the streamer positioning devices in the array are controlled. A plain reading of claim 15 requires on each streamer "a plurality of streamer positioning devices," but, by reciting further the limitation of calculating position changes "of one or more of the streamer positioning devices," it is clearly conveyed to the reader that not all the streamer positioning devices need be controlled. This is consistent with Dr. Triantafyllou's deposition testimony.

We understand from the specification, the claim language, and Dr. Triantafyllou's testimony that controlling all the streamer positioning devices on each streamer *would* facilitate control of the streamer array, however, we are not persuaded by the evidence in the record that control of all SPD's is a requirement of claim 1 imparted by the term "global control system." Accordingly, we do not construe "global positioning system" to require all streamer positioning devices to be controlled and we decline to adopt Patent Owner's construction. *See SuperGuide Corp.*, 358 F.3d at 875 ("a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment").

We are also not persuaded to read the word "coordinate" as advocated by Dr. Triantafyllou into the claim construction. The word "coordinate" is

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not found anywhere in the specification of the '607 patent with respect to relative control between all the streamers or all the SPD's. Ex. 2075 ¶¶ 88, 90. The specification uses the phrase, "to coordinate control," only once, and only to describe a prior art "two-wing" SPD and its local control system.[10] *See* Ex. 1001 5:34–38, 6:10–14. Dr. Triantafyllou does not specifically define the word "coordinate," but uses it as essentially a more nuanced word than "control" to explain a "global control system." Ex. 2075 ¶ 88. Dr. Triantafyllou confirmed this during his deposition:

> Q. Okay. And the point is that you can -- if you -- is the point to try to control them in a coordinated way so they're consistently being controlled?
>
> A. Yes.

Ex. 1117, 285:16–20. Dr. Triantafyllou's use of the word "coordinate[d]" is, however, based on the specification examples and preferred embodiments in the '607 patent explaining how the streamers and SPD's are "continuously" controlled. *See* Ex. 2075 ¶ 88. Because, as discussed above, we do not read limitations from these preferred embodiments and examples in the specification into the claims we also are not persuaded that the term "coordinate" should be read into the claims as a substitute, or in addition to, the word "control."

[10] This portion of the specification states that "FIG. 2 shows a type of bird 18 that is capable of controlling the position of seismic streamers 12 in both the vertical and horizontal directions. A bird 18 of this type is also disclosed in our PCT International Application No. WO 98/28636." Ex. 1001, 5:34–38.

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Nevertheless, we do not wholly discount Dr. Triantafyllou's testimony. Dr. Triantafyllou has considerable experience and credentials in this field and his testimony is entitled to certain weight. We are persuaded that one of skill in the art would understand that the term "global" is not entirely superfluous, but that it has some functional and structural meaning relative to "control system" as well as to the other structures, e.g. streamers and streamer positioning devices, recited in claim 15. Claim 1 requires "an array of streamers each having a plurality of streamer positioning devices . . . at least one of the streamer positioning devices having a wing" that can be adjusted by a local control system. Given that the plain meaning of the tem "global" can relate to or apply to a whole, it is reasonable to understand a "whole" being the array of streamers" called for in the claims. *See* PO Resp. 13 (*citing* Ex. 2068). Following from this basic definition, Dr. Triantafyllou's testifies that the word "global" modifies "control system" in such a way as to convey to one of skill in the art that "the control system oversees and affects the entire system." *See* Ex. 2075 ¶ 88. Dr. Triantafyllou explained further during his deposition when asked "What makes a global control system?"

13 A. The initial capability to control
14 anything, whether you want to apply it or not,

Ex. 1117, 149:12–14. We are persuaded by Dr. Triantafyllou's testimony that not all the streamers, or SPD's, in an array must be controlled, but that the global control system must be capable of controlling all the streamers and all the SPD's that one would need, or want, to oversee in the array. *See id.* at 122:6–11. Dr. Triantafyllou was definitive that all the SPD's could be

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controlled, but that one might choose, or not be able, to control all the SPD's and streamers in an array:

> 25 Q. Okay. Now, I want to discuss the
>
> M. TRIANTAFYLLOU
>
> 2 possibility where you have a streamer array and
> 3 one of the birds is broken, so you can't
> 4 control it with the global controller. Is that
> 5 encompassed by your definition of a global
> 6 control system?
> 7 A. When you start having a global
> 8 control system, whether it broke later or not,
> 9 you have still a global control system.

Ex. 1117, 147:25–148:9. In other words, Dr. Triantafyllou testified that it is not necessary to control each SPD to retain the nature of a global control system being capable of overseeing and affecting the array.

Based on the specification, claim language and evidence on the complete record before us, we determine that, under the broadest reasonable interpretation, and giving the words their plain and ordinary meaning consistent with the specification, the "global control system" is "a control system capable of overseeing and affecting the array of streamers and streamer positioning devices."

III. ANALYSIS

Petitioner asserts that claims 16–23 would have been obvious over the '636 PCT in combination with one or more secondary references. A patent is invalid for obviousness:

> 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 person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103. Obviousness is a question of law based on underlying factual findings: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Courts must consider all four Graham factors prior to reaching a conclusion regarding obviousness. *See In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1076–77 (Fed. Cir. 2012). As the party challenging the patentability of the claims at issue, Petitioner bears the burden of proving obviousness by a preponderance of the evidence. *See* 35 U.S.C. § 316(e).

A. Scope and Content of the Prior Art

1. The '636 PCT

The '636 PCT discloses a streamer positioning device, e.g. "a bird," for controlling the position of a marine seismic streamer as it is towed behind a boat in a streamer array. Ex. 1013, 2. Figure 1 of the '636 PCT, reproduced below, illustrates streamer control device 10 attached to seismic streamer 14. *Id.* at 3–4.

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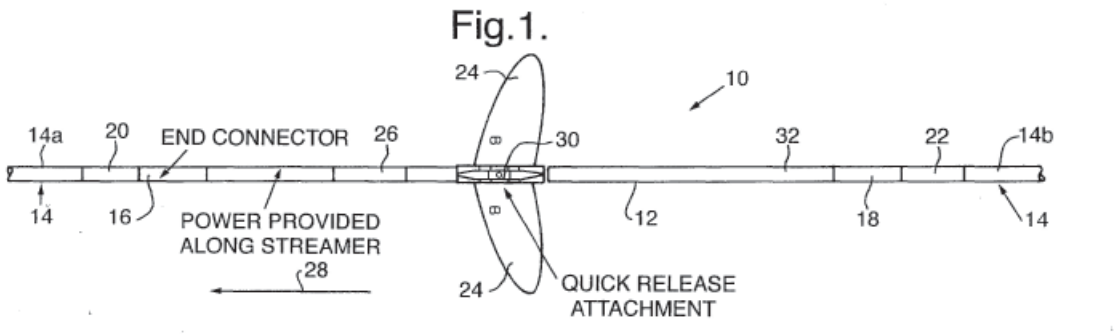

Figure 1 of the ’636 PCT, above, illustrates bird 10 with wings 24 adjusted according to a control system and control circuit to move the bird, and hence the streamer, in both a vertical (up and down) and lateral (left and right) direction, to achieve a desired position of the streamer in the water. *Id.* at 5–6.

The control system 26 disclosed by the ’636 PCT is illustrated by annotated Figure 2, reproduced below, and includes control circuit 34 with inputs 35–39 for receiving signals indicating actual depth and lateral position (36, 38), as well as desired depth and desired lateral position (35, 37).

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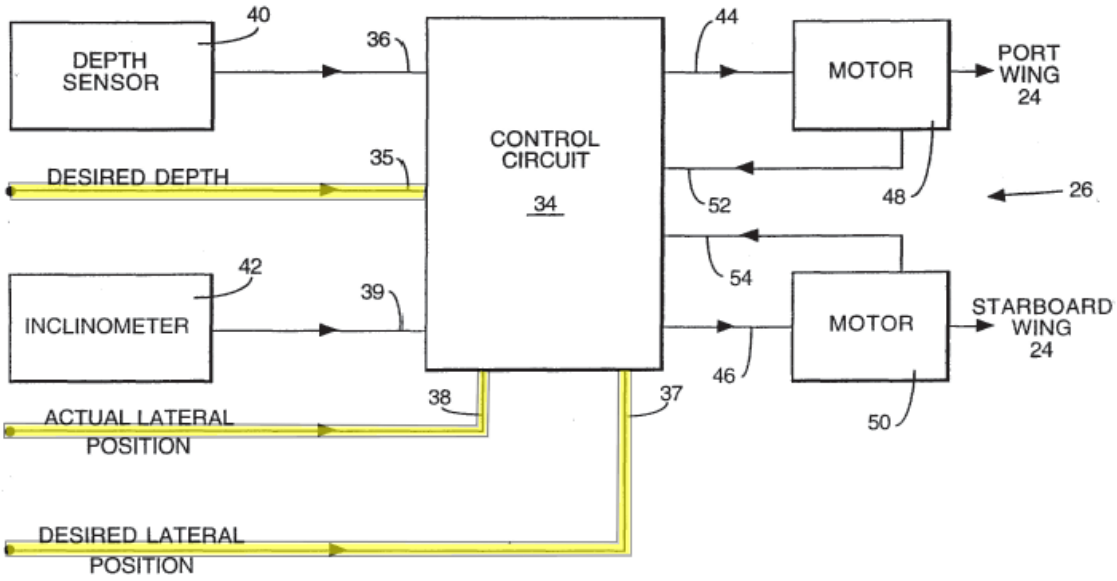
Fig.2.



As depicted diagrammatically by annotated Figure 2 of the '636 PCT, above, a depth sensor, typically mounted on the bird, provides an actual depth signal to control circuit 34. *Id.* at 5. The actual and desired lateral position signal as well as the desired depth signal, shown highlighted in yellow, are also received by control circuit 34 from an external position determining system (*id.*) to calculate and adjust, via stepper motors 48, 50, "the respective angular positions of the wings 24 which together will produce the necessary combination of vertical force (upwardly or downwardly) and lateral force (left or right) required to move the bird 10 to the desired depth and lateral position." *Id.* at 6.

2. Gikas

Gikas, is a 1995 article from THE HYDROGRAPHIC JOURNAL entitled, "A Rigorous and Integrated Approach to Hydrophone and Source Positioning during Multi-Streamer Offshore Seismic Exploration." Ex. 1006, 1. Gikas describes a method of reducing error propagation in towed seismic

streamer arrays due to the lack of precision and reliability in the gun and hydrophone positions. *Id.* at 11–12. Gikas describes that known methods used a "simple 'epoch by epoch' least squares" approach where "[s]imple least squares treats each epoch independently." *Id.* at 12. The problem with the least squares approach Gikas explains, is "that it does not use knowledge of the motion of the system." *Id.* According to Gikas, Kalman filtering more accurately assesses data in real time, whereas "[w]ith simple least squares, data has to be reduced to a specified epoch." *Id.* at 12–13.

3. Spink

U.S. Patent No. 3,560,912 to Spink et al., discloses a towed underwater vehicle used for data collection "which carries various instrumentation such as sensors, cameras, television and sonar equipment." Ex. 1058, 1:30–33. Spink explains that for data collection purposes it is desirable to maintain the vehicle "at a constant altitude from the ocean bottom to thereby follow its contours, or alternatively at a constant distance from the surface." *Id.* at 1:35–37. Figure 1 of Spink, reproduced below, illustrates vehicle 27 maintaining constant altitude H from the ocean bottom.

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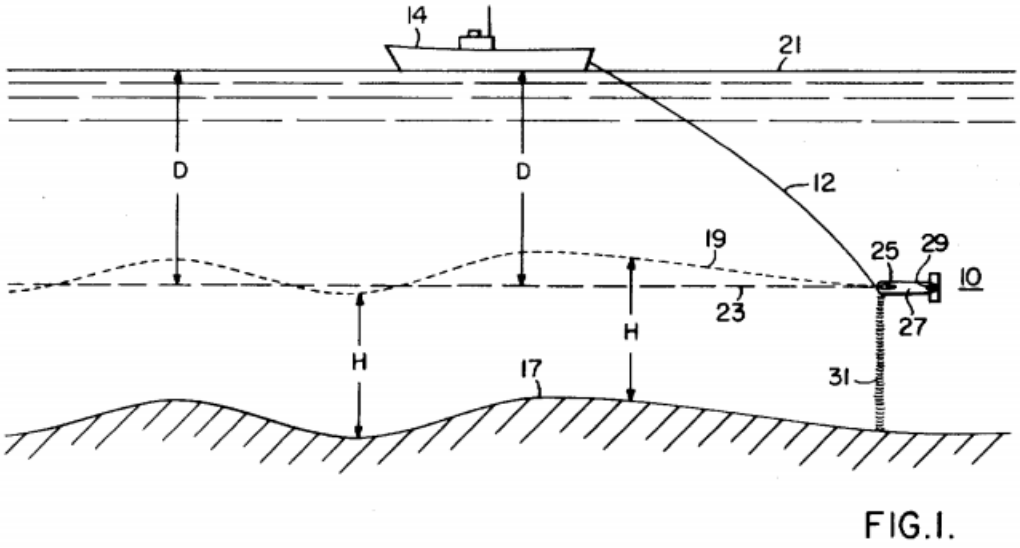

FIG. 1.

Figure 1 of Spink depicts vessel 14 towing underwater vehicle 10 at constant altitude H from the ocean bottom, and alternatively, constant distance D from the ocean surface. Spink explains that vehicle 10 uses wing surfaces 25 to control the vertical alignment of the vehicle:

> In order to provide for depth or altitude variation and control one type of vehicle incorporates the use of rotatable control surfaces, for example, rotatable wing surfaces which will vary the altitude of the vehicle if rotated while the vehicle is being towed.

Id. at 1:50–55.

4. The '394 PCT

The '394 PCT relates to a towed underwater streamer cable assembly including "sensors and cable-control devices, deployed at spaced locations along an instrumented underwater cable, such as a towed seismic streamer cable used in offshore seismic prospecting or other applications." Ex. 1059, 1:13–15. The '394 PCT describes electrical devices, referred to as "wet units," attached to the streamer cable and explains that "[t]he wet units

communicate with dry-end electronics disposed, for example, on the survey vessel via one or more communication channels." *Id*. at 1:22–24. The '394 PCT further explains that the communications can include a primary and backup data communication circuit:

> The invention further provides an underwater data communications system for communicating with a plurality of electrical devices, and includes a primary data communications circuit, a backup data communications circuit, and circuitry coupled to the primary data communications circuit and the backup data communications circuit to switch between the primary data communications circuit and the backup data communications circuit in response to a loss of power to the electrical devices.

Id. at 10:8–13.

B. Level of Ordinary Skill

Petitioner's Declarant, Dr. Evans states that a person of ordinary skill in the art of marine seismic surveying should have for example a Master's degree or Ph.D. in ocean engineering, mechanical engineering, geophysics, or a related area, an understanding of hydrodynamics and advanced control systems, and at least three years of experience designing and operating marine seismic surveys, including significant field experience aboard marine vessels undertaking marine seismic surveys. Ex. 1002 ¶ 22. According to Dr. Triantafyllou, Patent Owner's expert, one of ordinary skill in the art would have a "Bachelor of Science in ocean engineering or control systems; or five years of experience in the field of ocean engineering or marine seismic surveys." Ex. 2075 ¶ 18.

Fundamentally, there is no specific dispute regarding the level of ordinary skill in the art between the parties although Petitioner's definition

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essentially involves greater educational component and specific field experience on a survey vessel. Notwithstanding the evidence on skill level presented by the parties, the level of skill in the art often can be determined from a review of the prior art. *See Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163–64 (Fed. Cir. 1985). Based on our review of the prior art and the parties' definitions, the applicable field of endeavor is marine seismic surveying, and the person of ordinary skill in the art would have at least a bachelor's degree in ocean, mechanical, geophysical or electrical engineering, or a similar science degree, and a minimum of 3 years of marine seismic survey design and field experience. Ex. 2075 ¶ 18, Ex. 1002 ¶ 22. The person of ordinary skill in the art would also be familiar with the design and operation of marine seismic surveys and the design of seismic survey arrays including sensors such as hydrophones, streamers, streamer positioning devices, and the associated electronic equipment for producing representations of sub-surface geology. *See generally* Ex. 1001, 1:16–2:45, Fig. 1; Ex. 1013, 1–2; Ex. 1006; Ex. 1058; Ex. 1059.

C. Claims 16 and 17 – Obviousness over the '636 PCT and Gikas

We address independent claim 15 initially, as each of claims 16–23 depend directly or indirectly from claim 15, and assess any differences between the prior art and claim 15.

Claim 15

Patent Owner makes various arguments with respect to the '636 PCT and claim 15: Patent Owner argues that the '607 patent specifically distinguishes its invention from the '636 PCT; that the '636 patent describes merely control of a single SPD not control of a streamer array; and that the

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'636 PCT does not describe certain features of claim 15 including *inter alia* a "prediction unit," or "forces based on streamer and array behavior." PO Resp. 22–23, 30–31.

Initially, Patent Owner argues that in the written description of the '607 patent, "the '636 PCT is specifically distinguished from the '607 patent." *Id*. at 30. Read in context, the passage referred to by Patent Owner from the '607 patent provides a reasonable understanding of how the '607 patent distinguishes itself from the '636 PCT:

> [w]hile this ['636 PCT] type of system allows for more automatic adjustment of the bird wing angles, the delay period and the relatively long cycle time between position measurements prevents this type of control system from rapidly and efficiently controlling the horizontal position of the bird.

Ex. 1001, 2:38–43. The '607 patent thus differentiates itself by asserting that its control system can purportedly reduce the delay and cycle times between position measurements and is thus a faster and more efficient control system "to convert the measured vertical and/or horizontal displacements into corresponding forces to be applied by the birds 18." *Id.* at 6:54–56.

These arguments and references to the specification of the '607 patent are not persuasive because claim 15 includes no elements or features that include limitations relating to "delay periods" or "cycle times." The "control unit" as recited in claim 15 merely "calculate[s] desired changes in positions of one or more of the streamer positioning devices." Indeed, although the specification of the '607 patent may describe positional changes as "vertical and/or horizontal displacements," claim 15 does not require either vertical or lateral positional changes, only "changes in

position." Also, there is no recitation in claim 15 of "determining forces" as asserted by Patent Owner. As stated by the Federal Circuit in *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998), "the name of the game is the claim." It is well established that limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Patent Owner contends also that "the '636 PCT does not contain any of the features recited in claim 15 of the '607 patent, other than qualifying as a singular example of a streamer positioning device." PO Resp. 30. The '636 PCT describes that "[i]n order to perform a 3D marine seismic survey, a plurality of [] streamers are towed at about 5 knots behind a seismic survey vessel," and that "control devices known as 'birds', attached to each streamer at intervals of 200 to 300 metres, are used." Ex. 1013, 1. It is unambiguous from this disclosure that marine seismic streamer systems were known to include a plurality of streamers, e.g., an array, and that each streamer can include a plurality of positioning control devices, e.g., birds spaced 200–300 meters apart along the streamer to control the streamers. It is further clear from the description and Figure 2 that the '636 PCT discloses bird 10 having wings 24 and a local control system 26 that receives certain signals from a remote control system that "enables the horizontal or lateral position of the streamer 14 to be controlled, and not just its depth." *Id.* at 7.

We find that the '636 PCT discloses sufficiently to a person of ordinary skill in the art that each bird, or streamer positioning device in the seismic survey system can be controlled in depth as well as laterally by a distributed control system according to the remote and local control systems

working in conjunction. *See e.g.* Ex. 1001, 2:29–43. We decline to read the '636 PCT reference as disclosing merely a single controlled bird or SPD, where the reference expressly discloses that it was known to use multiple SPD's for controlling multiple streamers in a towed seismic streamer array. *See* Ex. 1013, 1, *see also* Ex. 1002 ¶ 129 ("The '636 PCT discloses a plurality of birds, 'attached to each streamer at intervals of 200 to 300 meters.'"). Furthermore, our understanding of the '636 PCT is consistent with the plain meaning of the '607 patent's written description, which explicitly describes multiple "birds" in the '636 PCT where "the desired horizontal positions and the actual horizontal positions are received from a remote control system and are then used by a local control system within the birds to adjust the wing angles." Ex. 1001, 2:32–35.

Although the '636 PCT does not state expressly that its control system controls "all" birds, and "all" streamers in the array, one of skill in the art would draw a reasonable inference that where the remote control system controls one bird, it is capable of controlling each of the plurality of birds on each streamer, i.e., the entirety of the array. Petitioner's Declarant, Dr. Evans, has an undergraduate Electrical Engineering Degree, a Masters in Applied Physics, a Ph.D. in Geophysics, and is a professor of Professor of Geophysics in the Department of Petroleum Engineering at Curtin University in Bentley, Western Australia. Ex. 1002 ¶¶ 6, 10–12. Dr. Evans has over 40 years of marine seismic survey experience including designing dozens of seismic surveys and personally participated on board seismic survey vessels in over one hundred seismic surveys. *Id.* ¶ 4. Dr. Evans is also the author of A Handbook for Seismic Data Acquisition in Exploration,

published by the Society of Exploration Geophysicists. *Id.* ¶ 5. In his analysis of the '636 PCT, Dr. Evans states that "[t]he '636 PCT thus discloses a distributed control system wherein the responsibility for streamer positioning was shared between a remote control system on the vessel and sophisticated local control systems located within *each streamer positioning device*." *Id.* ¶ 70 (emphasis added). Dr. Evans' experience and testimony demonstrates at least a level of ordinary skill in the art of marine seismic survey and data acquisition. We find his testimony persuasive evidence that one of ordinary skill in the art would understand that control systems disclosed in the '636 PCT are capable of controlling multiple birds or SPD's throughout a streamer array.

Next, Patent Owner argues that the '636 PCT "does not contain (1) a 'prediction unit' adapted 'to predict positions of at least some of the streamer positioning devices,' (2) a behavior-predictive model-based control, or (3) a 'control unit' adapted to use 'predicted positions to calculate desired changes in positions' of one or more SPDs." PO Resp. 22–23, 30–31.

These arguments are not persuasive because, with respect to points (1) and (3), Petitioner's obviousness argument relies on Gikas with respect to the "predictive unit" and "predicted positions" limitations. Also, claim 15 fails to recite, as asserted in point (2), any limitation with respect to "behavior-predictive model-based control" nor does Patent Owner provide a persuasive claim construction of any term in claim 15 that includes such a limitation. Further, with respect to point (3), the '636 PCT is clearly understood to have a "control unit." Although the '636 PCT does not itself

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expressly recite a "control unit," it clearly states in reference to Figure 2, that "[t]he lateral position signals are typically derived from a *position determining system* of the kind described in our US Patent No 4,992,990 or our International Patent Application No[.] W09621163." Ex. 1013, 5 (emphasis added). Without referring specifically to the noted '990 patent or the '163 PCT application, the described "position determining system" in the '636 PCT is reasonably understood in context as a distinct, or external, control unit from local control system 26 shown in Figure 2. *See* Ex. 1002 ¶ 70. It is further reasonable, in the context of this description and Figure 2 of the '636 PCT annotated above, to understand that the inputs shown highlighted in yellow: desired depth 35, desired lateral position 37, and actual lateral position 38 received by local control system 26 are not acquired from the local control system 26 itself, but from the external "positioning determining system" or control unit. *Id.;* Ex. 1013, Fig. 2. The issue of the functional limitation of the "control unit *adapted to use the predicted positions*" is not persuasive because as noted above, Petitioner relies upon Gikas for this aspect of claim 15.

The '636 PCT and Gikas

Patent Owner next argues that the combination of the '636 PCT and Gikas also does not disclose all the limitations of claim 15. PO Resp. 31. Patent Owner asserts that Gikas does not disclose lateral steering and the associated time delay. *Id.* (citing Ex. 1006, 11–12; Ex. 2075 ¶ 10). This argument is not persuasive because claim 15 does not recite any limitations with respect to "lateral steering" nor, as discussed above, "time delay."

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Claim 15 recites generally "changes in positions of one or more of the streamer positioning devices."

Patent Owner's position that the Kalman filter disclosed in Gikas is insufficient to describe the claimed "prediction unit adapted to predict positions" as recited in claim 15 is not persuasive. *Id*. at 32 (citing Ex. 2075 ¶¶ 76, 110, 155–167). Our review of Gikas indicates that the purpose of using a Kalman filter was, at least in part, for predicting the movement of the streamers. Gikas explains expressly that "[d]ue to its ability to predict the network, a Kalman filter is a far more powerful tool than simple least squares for quality control." Ex. 1006, 12. Consistent with the stated predictive abilities of a Kalman filter in Gikas, Petitioner's expert, Dr. Evans testifies that:

> one of the disclosed advantages was that the Kalman filter method would make it "possible to make a very accurate prediction of where the network will be *at any epoch* using just the previous position and the estimated configuration motion." *Id*. at12 (emphasis added). By being able to make "predictions" at any time—and at any point on the "network"—using previous position data and parameters such as estimated velocities of points on the network, Gikas could make accurate predictions of the actual positions of streamer positioning devices without succumbing to the "time delay associated with the horizontal position determination system" that is referenced in the '607 patent. *See* Ex. 1001 ('607 Patent) at 4:52–53.

Ex. 1002 ¶ 123. We are not persuaded that because a Kalman filter is also able to filter noise and undertake other data processing tasks, that it does not have the ability to predict the network. *See* PO Resp. 33. Patent Owner relies on its expert to support its position that Gikas does not "predict positions." *Id*. Dr. Triantafyllou testifies, however, that "Kalman filters can

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be used either (a) to remove noise from measurements, in which case even a very rough and simplistic model can be effective; or, (b) in conjunction with a controller as part of an overall control scheme; or, (c) to actually predict the behavior of the system in the future." Ex. 2075 ¶ 154. Furthermore, in his deposition testimony Dr. Triantafyllou stated that Gikas was estimating streamer positions:

Q. So let me ask you this. I understand that you think that his fifth order polynomial is not perfect, but you don't disagree that using it he's able to estimate any position along the curve. It may not be a perfect estimate, but he can use that as a way of estimating any position; right?

MR. KIKLIS: Objection, form.

A. He's [Gikas] estimating some positions which would be much better off with some other method, which I don't want to discuss now.

Ex. 1117, 275:7–17. Although Dr. Triantafyllou articulated that Gikas was not using a "behavior-predictive model" and the model used in Gikas was not as accurate purportedly as the behavior-predictive model described in the '607 patent, Dr. Triantafyllou was clear that Gikas provided an estimate of streamer position:

Q. Either way. The ultimate process that he uses is to model the shape of the streamer; right?

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6 A. To approximate, estimate.
7 Q. To estimate the shape of the
8 streamer?
9 A. Yes

Id. at 271:3–9. Whether or not the estimate was accurate, this testimony taken as a whole is generally consistent with our claim construction, that the term "predict positions" means "estimating the actual locations." We are also not persuaded that Gikas provides such estimates of streamer position only after the survey is complete as asserted by Patent Owner. *See* PO Resp. 33–34. Patent Owner cites generally to Dr. Triantafyllou's expert testimony at Exhibit 2075, paragraphs 155–167 as support for this argument. This argument is inconsistent, however, with Dr. Triantaflou's deposition testimony indicating that Gikas actually provides such estimates during the survey. *See* Ex. 1117, 249–50.

We are persuaded, having reviewed the complete record in this proceeding, that Gikas discloses a Kalman Filter solution that is consistent with "a prediction unit adapted to predict positions of at least some of the streamer positioning devices" as recited in claim 15 and is further consistent with our claim constructions above. We are further persuaded that the combination of the '636 PCT and Gikas is supported by articulated reasoning and evidentiary underpinnings in that one of ordinary skill in the art would have been motivated to achieve improved reliability of a streamer array provided by such a Kalman filter and use "predicted lateral position rather than the 'actual' lateral position" as Petitioner asserts. Pet. 34–35 (citing Ex. 1002 ¶¶ 65–70, 131–140; Ex. 1003 ¶¶ 95–97).

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Claims 16 and 17

Patent Owner argues only that claims 16 and 17 are patentable for the same reasons as claim 15. PO Resp. 34. Because we do not find claim 15 patentable over the combination of the '636 PCT and Gikas, for the reasons asserted in the Petition, we similarly do not find claims 16 and 17 patentable over the '636 PCT and Gikas.

D. Claims 18–20 – Obviousness over the '636 PCT, Gikas, and Spink

Claim 18

In the Decision to Institute, we determined that the relevant structure for "means for determining the angular velocity of each streamer positioning device" as recited in claim 18, is: a horizontal accelerometer and a vertical accelerometer, placed at right angles with respect to one another and a vibrating rate gyro as described in the '607 patent, or their equivalents. *See* Dec. on Inst., 10–11. The function of such "means" is explicit in claim 18, i.e., "determining the angular velocity."

Patent Owner argues that Petitioner has not provided a legally sufficient analysis showing that Spink discloses such structures or their equivalents. PO Resp. 35. "[A] challenger who seeks to demonstrate that a means-plus-function limitation was present in the prior art must prove that the corresponding structure—or an equivalent—was present in the prior art." *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 582 F.3d 1288, 1299 (Fed. Cir. 2009).

Petitioner asserts that the "means" disclosed by Spink are generally sensors or measurement devices that obtain data for determining the vehicle's angular velocity "in any one of a number of ways such as by

measurement of roll angle with appropriate differentiation, by measurement of roll angle and roll rate, or by measurement of roll acceleration with suitable acceleration." Pet. 38 (citing Ex. 1058, 6:46–50). With respect to structure, Petitioner's expert, Dr. Evans stated that "Spink also discloses that '*a roll rate sensor* is provided for deriving the rate of angular change Φ˙e,' which is the rate of change of the roll angle deviation from a defined reference position, or angular velocity." Ex. 1002 ¶ 155 (citing Ex. 1058, 6:55–57). Because Spink discloses a roll rate sensor, the question is whether "roll angle sensor 88" is an "equivalent" structure to a horizontal accelerometer and a vertical accelerometer, placed at right angles with respect to one another and a vibrating rate gyro as described in the '607 patent.

Our review of Petitioner's evidence, specifically Spink, indicates that Spink describes "roll angle sensor 88" and "roll rate sensor 90" as measurement instruments for obtaining roll angle deviation and angular velocity of the vehicle, which in turn allows position correction of the vehicle itself. *See* Ex. 1058, 4:32, 6:54–57; Ex. 1002, ¶¶ 155–156. We also give some weight to Dr. Evans' uncontroverted testimony that "a person of ordinary skill in the art would have clearly understood long before the priority date based on elementary principles of physics—that angular velocity can be determined by direct measurement, by integrating angular acceleration, or by differentiating the angle itself with respect to time." Ex. 1002, ¶ 155.

Turning to the legal issue of equivalents, Spink does not specifically describe "roll rate sensor 90" as paired accelerometers or a rate gyro, as set

forth in our claim construction. The question thus becomes: is a "roll angle sensor" an equivalent structure to a horizontal accelerometer and a vertical accelerometer, placed at right angles with respect to one another and a vibrating rate gyro as described in the '607 patent? The Federal Circuit explains that structures are equivalent if they perform "the claimed function in substantially the same way to achieve substantially the same result." *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267–68 (Fed. Cir. 1999). In Spink, we have the exact same result, roll rate sensor 88 provides a "rate of angular change" which is also understood by those of skill in the art as angular velocity. *See* Ex. 1002, ¶ 155. The '607 patent describes that "the accelerometers convey measurements that allow the central processor unit 54 to determine the roll angle and roll rate of the bird 18." Ex. 1001, 8:23–25. Spink explains with respect to its sensors that angular velocity can be obtained "by measurement of roll acceleration with suitable integration." Ex. 1058, 6:49–50. We determine, based on this evidence that in both the '607 patent and Spink the measurement structures are measuring *angular acceleration* of the device to which they are attached to eventually derive the *angular velocity*, and in this way obtain exactly the same result in the same way, by measurement of roll acceleration.

Patent Owner further argues essentially that Spink cannot be combined with Gikas and the '636 PCT because Spink "has nothing to do with seismic streamers," and "is unconcerned with streamer twist." PO Resp. 35–36. The argument that Spink is not attached to a streamer is not persuasive because Spink is referenced specifically for its disclosed measurement structures and functions relating to roll rate of a towed

underwater vehicle. *Id.* Gikas and the '636 PCT are the references relied upon for teaching the claimed array of seismic streamers and streamer positioning devices. Pet. 37–41. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references"). Moreover, Patent Owner's arguments do not explain why measurement structures and functions such as disclosed in Spink's towed underwater vehicle would not provide the same result in an SPD attached to a streamer.

Finally, to the extent Patent Owner argues that one of ordinary skill in the art would not have been motivated to combine Spink with the '636 PCT because "the '636 PCT lacks any disclosure of this limitation" (PO Resp. 36), Spink clearly discloses that roll rate sensors, and measurement of angular acceleration was known in the art. Obviousness is not determined from the perspective of the inventors or authors of a prior art reference. Rather, obviousness is determined from the perspective of a hypothetical person having ordinary skill in the art. It is only that hypothetical person who is presumed to be aware of all pertinent prior art. *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454 (Fed. Cir. 1985). For the reasons stated by Petitioner we are persuaded that Petitioner has provided an articulated reasoning supported by evidentiary underpinnings sufficient to support a conclusion of obviousness of Spink, the '636 PCT and Gikas, and has also shown persuasively that these references as combined disclose all the elements of claim 18.

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Claim 19

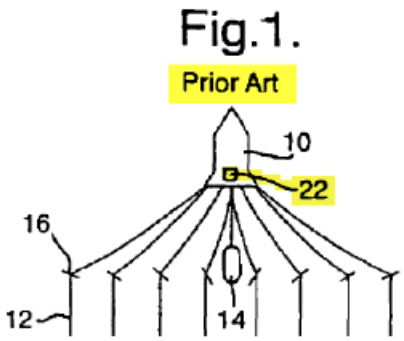
Claim 19 recites the limitations that "a *global control system* is located on or near said seismic vessel and a respective local control system is located within or near each streamer positioning device." (Emphasis added). Patent Owner argues that "[t]he '636 PCT, however, does not disclose ***any*** control beyond a local control system, let alone a global control system. PO Resp. 37–38 (citing Ex. 2075, ¶¶ 98–99, 138, 141–144).

As discussed above with respect to claim 15, the '607 patent, in context, clearly describes the '636 PCT control system having a positioning determining system that is an external, "remote control system," i.e., separated or spaced from a "local control system." Ex. 1001, 2:29–36. Although the '607 patent does not expressly equate the "remote control system" to the "position determining system" or describe the '636 PCT's control system 26 expressly as a "local control system," it is unclear to us on this record given a sensible perspective of the '607 patent's express reference to the '636 PCT and a plain meaning of the word "remote," what else they would be.[11] Accordingly, we are persuaded by the evidence that the '636 PCT discloses an overall distributive control system as described in the '607 patent where

> the desired horizontal positions and actual horizontal positions are received from a remote control system and are then used by a local control system within the birds to adjust the wing angles.

[11] The MERRIAM-WEBSTER ONLINE DICTIONARY provides an ordinary meaning of "remote" as "separated by an interval or space greater than usual." http://www.merriam-webster.com/dictionary/remote (last visited Feb. 29, 2016).

Id. at 2:32–35. Further supporting our determination, Figure 1 of the '607 patent, reproduced below in relevant part with annotations, is clearly labeled as "Prior Art" and includes reference number 22 positioned on vessel 10. The '607 patent describes element 22 as "a global control system 22 located on or near the seismic survey vessel 10." *Id.* at 3:58–59.



Annotated Figure 1 of the '607 patent, reproduced in relevant part above, illustrates as "Prior Art" vessel 10 towing streamers 12, and having global control system 22 onboard the vessel. Even if we make the assumption that the specific word "global" was unintended as part of the "Prior Art," it is reasonable to understand from the '607 patent, given Figure 1 and the '636 PCT, that a different, external, or "remote" control system was known to be positioned on the towing vessel and in communication with a local control system with the birds in the array. "By filing an application containing Figs. 1 and 2, labeled prior art, ipsissimis verbis, and statements explanatory thereof appellants have conceded what is to be considered as prior art." *In re Nomiya*, 509 F.2d 566, 571 (CCPA 1975).

We are furthermore not persuaded that "'remote control' simply implies control of a single bird or local control system from an external source." PO Resp. 38. Given Dr. Evans' testimony above with respect to

claim 15, it is axiomatic that one of skill in the art could apply the control of a bird taught in the '636 PCT to any or all birds in the known seismic array system disclosed in the '636 PCT. *See* Ex. 1002 ¶¶ 170–173. Where each bird in a seismic array system can be controlled, the system is capable of controlling each streamer having a bird, in an array consisting of a plurality of streamers. Thus, we determine that the '636 PCT's teachings result in "a control system capable of overseeing and affecting the array of streamers and streamer positioning devices," as the term "global control system" is properly construed as discussed above. We are persuaded for the reasons set forth above relative to claim 15, and by the disclosures of the '607 patent and '636 PCT, that the remote control system and local control system disclosed in the '636 PCT are capable of overseeing and affecting the streamer array and multiple SPD's in part and in whole.[12] We are persuaded for the reasons and evidence set forth by Petitioner in the Petition that claim 19 is obvious in view of the '636 PCT, Gikas, and Spink.

Patent Owner does not substantively address claim 20 which depends from claim 19. We are persuaded for the reasons and evidence set forth by Petitioner in the Petition that claim 20 is also obvious in view of the '636 PCT, Gikas, and Spink. *See* Pet. 50–51.

Claims 21–23

Patent Owner initially asserts that claims 21–23 are not rendered obvious because they depend from independent claim 15 and the

[12] Patent Owner objects that the reference, U.S. Patent No 4,992,990 to Langeland et al., ("Langeland," or "the '990 patent"), is not properly incorporated by reference. PO Resp. 38–40. Because we do not rely on the '990 patent for any part of our Decision, we do not address this argument.

combination of the '636 PCT and Gikas fail to disclose the "position prediction limitations" of claim 15. PO Resp. 41. Because we determined, above, that the combination of the '636 PCT and Gikas teaches all the elements of claim 15, this argument is unpersuasive.

With respect to claim 21, Patent Owner argues further that the "global control system" and "local control system" recited in claim 19, from which claim 21 depends, are not rendered obvious by the combination of the '636 PCT, Gikas, and Spink, and the '394 PCT does not cure these deficiencies. *Id*. Because we determined, above, that the combination of the '636 PCT, Gikas, and Spink teaches all the elements of claim 19, there are no deficiencies to cure, and we, therefore, do not find this argument persuasive.

Turning to claim 22, Patent Owner asserts that one of skill in the art would not look to the '394 PCT for the claimed cycle rate because "the '394 PCT does not even teach that cycle time to data rate ratio is critical when steering streamers laterally." *Id*. at 42. Petitioner asserts that the '394 PCT discloses a microprocessor (a Motorola 56002 microprocessor) that, at 80 MHz, is faster than the 33 MHz 17C756 microprocessor disclosed in the '607 Patent and thus would readily have a cycle rate of at least 10 times greater than the data transfer rate of the communication line. Pet. 56 (citing Ex. 1002, ¶ 208). Petitioner's expert, Dr. Evans, further explains that a person of ordinary skill in the art would desire to attain fast sampling cycle rates, such as 10 times the communication line data transfer rate, with a sufficiently fast processor to control the birds, and states that "the use of a standard modern processor at the time of the priority date with a standard

communication line (such as fiber optics) would have satisfied Claim 22's limitations." Ex. 1002, ¶¶ 208–209.

Patent Owner has made no showing that the minimum cycle rate value of 10x the data transfer rate as recited in claim 22 of the '607 patent is critical or unique. Where "the difference between the claimed invention and the prior art is some range or other variable within the claims . . . the applicant must show that the particular range is critical, generally by showing that the claimed range or value achieves unexpected results relative to the prior art." *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). The only persuasive evidence on this issue in the record from Patent Owner is from Dr. Triantafyllou who testified during his deposition that this minimum cycle rate was a "rule of thumb" and that "it's not something unusual or unreasonable." Ex. 1118, 538. This is consistent essentially with Dr. Evan's testimony that such a sampling cycle rate requirement was routinely accomplished by processors at the time of the '607 patent priority date. *See* Ex. 1002 ¶ 208. We are persuaded, therefore, based on Dr. Evans' testimony that the '394 PCT in accordance with standard sampling rate criteria and typical processor speeds known to those of skill in the art before the filing of the '607 patent, discloses a processor for a local control unit that meets the claimed "cycle rate that is at least 10 times greater than the data transfer rate of said communication line" as called for in claim 22. We have reviewed the arguments and evidence presented for claim 23 and are persuaded for the reasons and evidence set forth by Petitioner in the Petition that claim 22 is obvious in view of the '636 PCT, Gikas, Spink, and the '394 PCT.

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Patent Owner does not substantively address claim 23 which depends from claim 22. We have reviewed the arguments and evidence presented for claim 23 and are persuaded for the reasons and evidence set forth by Petitioner in the Petition that claim 23 is also obvious in view of the '636 PCT, Gikas, Spink, and the '394 PCT. *See* Pet. 57–60.

E. Secondary Considerations of Non-Obviousness

Evidence showing objective indicia of nonobviousness constitutes "independent evidence of nonobviousness." *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1378 (Fed. Cir. 2012) (quoting *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1319 (Fed. Cir. 2010)). Evidence of secondary considerations of non-obviousness, when present, must always be considered en route to a determination of obviousness. *Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d at 1075–76; *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538–39 (Fed. Cir. 1983). Whether before the Board or a court, consideration of objective indicia is part of the whole obviousness analysis, not just an afterthought. *See Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1357–1358 (Fed. Cir. 2013).

Patent Owner has proffered certain evidence of secondary considerations. PO Resp. 45–51. The factual inquiries for obviousness include secondary considerations based on evaluation and crediting of objective evidence. *Graham*, 383 U.S. at 17. However, to accord substantial weight to objective evidence requires the finding of a nexus between the evidence and the merits of the claimed invention. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); *see also In re Huang*, 100 F.3d

135, 140 (Fed. Cir. 1996) ("[S]uccess is relevant in the obviousness context only if there is proof that the sales were a direct result of the unique characteristics of the claimed invention."). "Nexus" is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). The burden of showing that there is a nexus lies with the patent owner. *Id.*; *In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

Patent Owner contends that certain evidence from the *ION* lawsuit and from the Declaration of Robin Walker (Ex. 2099), Patent Owner's former Vice President of Sales and Marketing Director, establishes a long-felt need and commercial success of the patented inventions. PO Resp. 47 (citing Ex. 2099 ¶¶ 10–36; Ex. 2101, 3; Ex. 2108, 20). Specifically, Patent Owner argues that "the record evidence from the ION litigation, as well as the Declaration of Robin Walker filed herewith, establishes the long-felt need for and commercial success of the patented inventions, as well as initial industry skepticism followed by praise once the inventions were commercialized." *Id.* at 46–47.

1. Commercial Success and Long-Felt Need

Patent Owner argues that Q-Marine, the WesternGeco Product that purportedly embodies the inventions recited in the claims of the '607 patent, was commercially successful because it "met the long-felt, previously unsatisfied need for closer streamer spacing without the risk of tangling, elimination or reduction of costly infill, faster turn times, and better, more

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frequent 4D surveys through its use of array-level lateral steering enabled by the patented inventions." PO Resp. 47 (citing Ex. 2099 ¶¶ 10–36; Ex. 2101, 3; Ex. 2108, 20). Patent Owner's evidence includes the Declaration testimony of Mr. Robin Walker, who testifies that:

> In August 2000, WesternGeco launched the Q-Marine system, its commercial embodiment of the Bittleston patents and the first lateral steering system on the market. Through its provision of WesternGeco's patented lateral steering technology, Q-Marine satisfied a significant, previously unmet need in the industry for better quality data and more cost-effective surveys by offering numerous benefits.

Ex. 2099, ¶ 12. We understand from Mr. Walker's testimony that the Q-Marine's benefits result in "better quality data and more cost-effective surveys," and that these benefits derive from "Western Geco's patented lateral steering technology," as stated by Mr. Walker. *Id.* This evidence tends to show that the industry was interested in products that could achieve improved or better data acquisition, and perhaps understood that lateral steering of the birds and streamers helped achieve improved data. However this evidence is not sufficiently linked to the claims at issue. Claim 15 relates simply to "changes in positions" of the bird and streamer, not specifically lateral control. Paragraph c) of claim 15 bears repeating:

> (c) a control unit adapted to use the predicted positions to calculate desired changes in positions of one or more of the streamer positioning devices.

Ex. 1001, 12:32–34.

Mr. Walker's testimony, above, with respect to lateral steering being the patented aspect of Q-Marine which drove sales, is not persuasive as it pertains to claim 4 and vertical control of a bird. Indeed, to the extent lateral

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control is asserted as a novel aspect of the claimed invention with respect to any claims in the '607 patent, for example in claim 16, such evidence is contradicted by Dr. Simon R. Bittleston, one of the named inventors of the '607 patent, who testified in the underlying *ION* lawsuit that he did not invent laterally steered, towed devices, but a "global control system":

> Q: So any statement that you invented lateral steering is just wrong?
>
> A: Yes. I am not the inventor of laterally steering. I'm an inventor of a global control system.

Ex. 2083, 91:12–15. We are not persuaded by Patent Owner's arguments or evidence that the laterally steerable Q-Marine product satisfied a long-felt, or unmet need leading to commercial success because lateral steering was apparently already known in the industry, and also because claim 15 does not contain any limitation or recitation with respect to lateral steering. Consequently, we accord very little weight to Mr. Walker's testimony and the other evidence pertaining to the alleged benefits of lateral steering with respect to supplying the required nexus for long-felt need and commercial success.

To the extent that Patent Owner is relying on commercial success apart from long-felt need by alleging "billions of dollars in revenue," (PO Resp. 48 (citing Ex. 2099, ¶ 51)), a patentee demonstrates commercial success by showing significant sales of the patented product in a relevant market. *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563 (Fed. Cir. 1997). Mr. Walker testifies mainly that such sales and "commercial success is due to WesternGeco's patented lateral steering technology, specifically the predictive and global control and ability to target and

implement modes to control separations, feather and turns." Ex. 2099 ¶ 52. Patent Owner does not explain why billions of dollars of Patent Owner's sales alone, without accompanying market share data, constitutes commercial success. It is well established that absolute sale numbers without market share data does not establish commercial success. *See, e.g.*, *Huang*, 100 F.3d at 140. Neither Mr. Walker nor Patent Owner's Response discusses or present market share information.

We give very little weight with respect to nexus based on Mr. Walker's testimony. Claim 15 does not include such a lateral steering limitation. With respect to claims 16–23, Patent Owner has not proven that the sales were a direct result of the unique characteristics of the invention, and not a result of economic and commercial factors unrelated to the quality of the novel subject matter. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1299–1300 (Fed. Cir. 2012). Consequently, Patent Owner has not produced sufficient evidence, including persuasive facts, data or analysis that links the asserted commercial success of the Q-marine product to a specific feature of the claims at issue.

2. Industry Praise

Patent Owner lists numerous documents purportedly evidencing significant industry praise for the claimed invention. PO Resp. 48 (citing Exs. 2111, 2; 2129, 1; 2130, 2; 2122; 2135, 1–2; 2113, 26; 2114; 2115, 2; 2109, 1; 2110, 7; 2116, 1–2; 2112, 3; 2120, 10; 2125, 4113:23–4114:24). We find this evidence as a whole also relates to the feature of lateral steering of the Q-Marine product. For example, Patent Owner refers to trial testimony in the *ION* lawsuit from Kenneth Williamson, a senior vice

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president of GeoVentures Group, a business unit of ION, who was formerly an employee of WesterGeco:

> Q. Some oil companies, while you were at WesternGeco, would have attributed the highest value to Q-Marine's lateral steering capabilities, correct?
>
> A. Yes. . . .
>
> Q. And you recall that Statoil selected WesternGeco for that survey because of Q-marine's lateral steering capabilities?
>
> A. In that case, yes.

Ex. 2125, 4113:23–4114:24. The evidence presented by Patent Owner of industry praise relating to the lateral steering capabilities of the Q-marine product is for an unclaimed feature not present in claim 15 and does not persuade us that Patent Owner has supplied the required evidence of nexus tying industry praise for the Q-Marine product to the invention recited in claim 15.

Having considered Patent Owner's evidence of long-felt need, commercial success and industry praise for lateral steering, this evidence does not outweigh the strong showing of obviousness made out by Petitioner in view of anticipation by the '636 PCT. *See Sud-Chemie, Inc. v. Multisorb Techs., Inc.*, 554 F.3d 1001, 1009 (Fed. Cir. 2009) ("evidence of unexpected results and other secondary considerations will not necessarily overcome a strong prima facie showing of obviousness"). Patent Owner has not established a sufficient nexus between the claimed features of the '607 patent at issue here and the alleged commercial success of the Q-Marine product. Accordingly, the alleged commercial success of the Q-Marine

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product does not support a conclusion of nonobviousness of the challenged claims in this case.

F. Time Bar under 35 U.S.C. § 315(b)

Patent Owner makes several arguments in support of its position that the PGS IPR is time-barred under 35 U.S.C. § 315(b) because PGS is a privy of ION Geophysical Corporation ("ION") and because ION is an unnamed real party in interest ("RPI"). PO Resp. 51–59. We address each of Patent Owner's arguments below.

1. Privity Under 35 U.S.C. § 315(b)

Under 35 U.S.C. § 315(b), institution of an *inter partes* review is barred "if the petition requesting the proceeding is filed more than 1 year after the date *on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent*" (emphasis added). We note that "[t]he notion of 'privity' is more expansive, encompassing parties that do not necessarily need to be identified in the petition as a 'real party-in-interest.'" Office Patent Trial Practice Guide, 77 Fed. Reg. 48, 756, 48, 759 (Aug. 14, 2012). "Privity is essentially a shorthand statement that collateral estoppel is to be applied in a given case . . . . The concept refers to a relationship between the party to be estopped and the unsuccessful party in the prior litigation which is sufficiently close so as to justify application of the doctrine of collateral estoppel." *Id.* (quoting 154 Cong. Rec. S9987 (daily ed. Sept. 27, 2008) (statement of Sen. Kyl)).

Patent Owner contends that Petitioner and ION are privies and thus Petitioner is time-barred because ION was served with a complaint alleging infringement of the '607 patent more than four years before the petition was

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filed. PO Resp. 51–54. Patent Owner contends specifically that PGS is a privy of ION because PGS asked ION to develop, and now purchases, the allegedly infringing DigiFin product from ION under a contractual agreement. *Id*. at 54. Patent Owner asserts that Petitioner and ION are privies because PGS and ION have a cooperative relationship in the underlying *ION* lawsuit and this IPR due to an indemnification agreement. *Id*. at 55. Patent Owner further alleges that PGS appeared in the *ION* lawsuit, and this, in addition to the assertion of a common interest privilege with respect to their communications in the *ION* lawsuit, establishes privity. *Id.* at 55–56.

It is undisputed that service was effected on ION as a defendant in the *ION* lawsuit on June 12, 2009, alleging infringement of the '607 patent more than one year before the petition was filed on September 18, 2014. Patent Owner also filed a similar complaint against a company called Fugro, a customer of ION, which was consolidated with the *ION* lawsuit. On December 8, 2009, remarking that Petitioner may have been involved in the design and testing of the ION products, Patent Owner provided Petitioner via email with a copy of the complaint against ION. *Id*. at 55 (citing Ex. 2008). Subsequently in the *ION* lawsuit, Patent Owner subpoenaed Petitioner on January 22, 2010 to produce documents and evidence relating *inter alia* to Petitioner's use and operation of ION's DigiFIN product. *Id*. (citing Ex. 2009). Patent Owner argues that "once entering an appearance, PGS was actively involved in the case," and "consistently communicated with ION's in-house counsel." *Id*. (citing Exs. 2015, 2016).

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We are not persuaded that communications between PGS and ION in the *ION* litigation, based on a subpoena filed by Patent Owner, is persuasive of privity. The email communications relied upon by Patent Owner, Exhibits 2015, and 2016, indicate (1) that ION desired to depose certain PGS employees (Ex. 2015), and (2) that ION suggested to PGS counsel (Ex. 2016) that certain public trial testimony and expert reports from the *ION* lawsuit might be helpful for PGS to understand WesternGeco's and ION's positions in the lawsuit. The employee deposition communication is simply an arms-length, although cordial, negotiation between different companies, to make certain employees available for deposition. *See* Ex. 2015. In fact, ION's counsel concedes that there were procedural difficulties between ION and PGS in deposing PGS employees. *See id*. Furthermore, apart from citing to this email, Patent Owner provides no explanation as to why this communication is indicative of duplicitous collusion on the part of either PGS or ION that would be any basis or evidence of privity. *See* PO Resp. 54–55. Patent Owner similarly provides no explanation as to why a fairly simple email exchange between ION and PGS counsel regarding the start time of an experts' public trial testimony is a basis for privy. *See id*. (citing Ex. 2016).

Patent Owner also believes its allegations of privity are supported by a "common interest privilege" asserted by PGS and ION. PO Resp. 56 (citing Ex. 2028). The nature of shared interests in invalidating the '607 patent, undertaking a joint defense and assertion of a common interest privilege does not, without more, indicate privity between Petitioner and ION. *See Practice Guide*, 77 Fed. Reg. at 48,760:

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> [I]f Party A is part of a Joint Defense Group with Party B in a patent infringement suit, and Party B files a PGR petition, Party A is not a 'real party-in-interest' or a 'privy' for the purposes of the PGR petition based solely on its participation in that Group.

Collaboration, by itself, is not evidence that ION has any involvement either by way of control, or funding the filing of this Petition.

There is nothing surreptitious about separate entities, as either third parties, or separate parties to a legal action, proclaiming shared interests to protect communications that are relevant to advance the interests of the entities possessing the common interest. *See In re Regents of Univ. of Cal.*, 101 F.3d 1386, 1389 (Fed. Cir. 1996) ("The protection of communications among clients and attorneys 'allied in a common legal cause' has long been recognized.") (quoting *In re Grand Jury Subpoena Duces Tecum*, 406 F. Supp. 381, 386 (S.D.N.Y. 1975)). The simple fact that Petitioner and ION have a desire, and common interest based on the ION lawsuit, in invalidating the '607 patent and other WesternGeco patents, and have collaborated together, and invoked a common interest privilege, does not persuade us that ION has the ability to control the District Court proceeding or is directing or funding the District Court proceedings or this IPR proceeding.

A common criteria in determining privity is that of control. For our purposes here, a relevant question is: does the evidence presented by Patent Owner display sufficient exercise of control by ION over PGS? Case law reveals that there must be more than just general communication and a shared interest. *Taylor v. Sturgell*, 553 U.S. 880, 906 (2008) ("A mere whiff of 'tactical maneuvering' will not suffice; instead, principles of agency law are suggestive. They indicate that preclusion is appropriate only if the

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putative agent's conduct of the suit is subject to the control of the party who is bound by the prior adjudication.")

With respect to the ability to control, the Board has issued decisions determining based on evidence of control that a non-party entity is a real party-in-interest. *See Zoll Lifecor Corp. v. Philips Elecs. N. Am. Corp.*, Case IPR2013-00609 (PTAB Mar. 20, 2014) (Paper 15) (the "Zoll Decision"). In the *Zoll* Decision, the Board was persuaded that an unnamed party to the IPR, Zoll Medical, exercised consistent control over Zoll Lifecore for over six years, including control of the *inter partes* review. *Id.* at 11. Specific evidence of control included Zoll Lifecor's acknowledgment that Zoll Medical controlled 100% of Zoll Lifecor and approved Zoll Lifecor's corporate budget and plans. *Id.* Other evidence of control included the fact that common counsel for Zoll Medical and Zoll Lifecor would not state affirmatively that counsel did not provide input into preparation of the IPRs. *Id.* at 11–12. Additional evidence showed that only Zoll Medical's management team attended court-ordered mediation in the underlying district court litigation filed against Zoll Lifecor. *Id.* at 12. These factors are relevant for the determination of privity. *See ARRIS Group, Inc. v. C-Cation Techs., LLC*, Case IPR2014-00746, slip op. at 8–10 (PTAB Nov. 24, 2014) (Institution Decision, Paper 22). A "common consideration" in determining whether a non-party is in privity with a litigant is "whether the non-party exercised or could have exercised control over a party's participation in a proceeding." *Id.* (citing *Taylor*, 553 U.S. at 895).

We have been apprised of no such evidence of control, or ability to control by ION in this proceeding, the District Court proceeding, or any

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other proceeding. ION and Petitioner are not related corporate entities, but related as purchaser (Petitioner) and manufacturer (ION) of ION's DigiFIN product. *See generally* Exs. 2002, 2006. By way of background, based on a request in October 2000 from PGS, ION provided to PGS a written proposal to develop a "Next Generation Streamer Positioning System." Ex. 2002. In May 2006, ION and Petitioner executed a "Launch Partner Agreement," that specified a 60-day "beta test" procedure where ION would supply the DigiFin product and Petitioner would supply the ocean going survey vessel, the "American Explorer," to conduct the beta test. Ex. 2006. Patent Owner's mere reference to these documents is not, without more, persuasive evidence of control of the *ION* lawsuit or the PGS IPR. *See* PO Resp. 54. For example, the "Launch Partner Agreement" is simply evidence of a purchaser-manufacture relationship with Petitioner (PGS) and ION collaborating on an initial field "beta test" of the DigiFin product. *See* Ex. 2006.

Patent Owner next points to deposition testimony from the *ION* lawsuit of ION employee John Thompson that it contends establishes privity. PO Resp. 54–55. The confidential deposition evidence of John Thompson (Ex. 2059), and a related email and press release (Ex. 2060; Ex. 2061) relied upon by Patent Owner establish that ION informed Petitioner in June 2009, and also apparently the entire U.S. industry via the press release, about the existence of the *ION* lawsuit. *See* Ex. 2059, 38:20–39:8; Ex. 2060; Ex. 2061. Thompson's email to Petitioner contained a copy of the press release and indicates that ION issued the press release in the U.S. on June 22, 2009. Exs. 2060, 2061. Referring to the press release Mr. Thompson

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stated: "This sums up our current position with regard to the filing by WesternGeco and our subsequent lawsuit filed against them. We will obviously keep PGS advised of any further developments." Ex. 2060. Patent Owner cites Mr. Thompson's statement in their Response, but provides no analysis or explanation as to why such a statement shows privity. It is entirely reasonable, and understandable, that the manufacturer of DigiFin, inform its customers of a lawsuit impugning the DigiFin product. We are not persuaded, therefore, that this email is evidence of control or privity between PGS and ION or anything other than an activity consistent with a typical purchaser-manufacturer relationship.

Patent Owner further alleges that ION is obligated to indemnify Petitioner, and thus is a privy with Petitioner, because of an indemnification provision in the 2008 Master Purchase Agreement (Ex. 2057) between PGS (Petitioner) and [redacted] an ION subsidiary. PO Resp. 56. Patent Owner argues that the indemnification provision "unequivocally obligates ION [redacted] to indemnify PGS from any claim by third parties regarding breach of patent rights and grants unilateral control to ION [redacted]" *Id*. at 56–57. In its Response, Patent Owner provided the following annotated excerpt from the indemnification provision:

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Id. (citing Ex. 2057, 14 (emphasis added)). We reproduce, below the entire provision, including the bulleted options left out by Patent Owner, as we believe they aid in understanding the provision as a whole.

[redacted]

Ex. 2057, 14.

Patent Owner contends that Petitioner invoked this indemnification provision in its letter of November 13, 2012 to ION citing the above indemnification provision and stating [redacted] Ex. 2027. From this letter, and the Agreement, Patent Owner summarily concludes that ION's obligations are "defending against an infringement lawsuit, proving the invalidity of a patent in a review proceeding, and obtaining a license." PO Resp. 57.

We do not agree that the bulleted provisions above extend the ION's rights or obligations as far as Patent Owner asserts. Nowhere in the asserted provision of the Agreement does it state that [redacted] (ION) has the right, or obligation, to *defend a lawsuit*, control litigation, or undertake any type of invalidity proceedings such as the District Court proceeding or the present

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IPR. We agree with Patent Owner that a reasonable interpretation of the indemnification provision, above, could include [redacted]. *Id.* There is, however, no express language or evidence that Patent Owner points to that persuades us to interpret the language of the indemnification provision as requiring ION to "defend[] against an infringement lawsuit," and thus extend the provision to include a specific obligation to defend, or pay for, a lawsuit filed against Petitioner or to undertake an IPR proceeding on Petitioner's behalf. Certainly, ION has every right to defend itself against an infringement lawsuit, or file its own IPR; however no reasonable reading of the language pointed to by Patent Owner obligates ION to do the same for Petitioner.

Indeed, there is insufficient evidence in the record that Petitioner ever contemplated or requested ION to defend a lawsuit or file an invalidity proceeding on its behalf. Petitioner's letter of November 13, 2012 to ION, does not actually "invoke" any specific remedy or refer to any necessity for ION to step in and defend a lawsuit; Petitioner's letter requests generally "[redacted]." *See* Ex. 2027. In fact, a previous email sent July 6, 2012 from [redacted], is consistent with the indemnification provision in the Agreement and also does not specify or imply any obligation on the part of ION to defend PGS from a lawsuit, reimburse or pay for a lawsuit, or file an invalidity proceeding. *See* Ex. 2022. [redacted]

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[redacted]

Id.

This evidence does not persuade us that ION has an obligation to step in and defend Petitioner against a lawsuit or to otherwise pay for the defense of a lawsuit and advance Petitioner as ION's proxy. "The mere existence of an indemnification agreement does not establish that the indemnitor has the opportunity to control an inter partes review." *Nissan N. Am., Inc. v. Diamond Coating Tech., LLC*, Case IPR2014-01546, slip op. at 7 (PTAB Apr. 21, 2015) (Paper 10) (determining that the existence of an indemnification agreement was not sufficient to establish that the unnamed parties were real parties-in-interest to the *inter partes* review proceeding); *see also Arris Group, Inc. v. C-Cation Techs., LLC*, Case IPR2015-00635, slip op. at 9–12 (PTAB July 31, 2015) (Paper 19) (determining fact that "indemnification claims were made according to the provisions of the [indemnification] Agreements" was not sufficient to show control over the district court proceedings such that a party was in privity with the Petitioner).

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The evidence shows that Petitioner and ION had a contractual and fairly standard customer-manufacturer relationship with respect to DigiFin. *See* Exs. 2002, 2022, 2027, 2057, 2060, 2061. Indeed, the [redacted] and communications between [redacted] reveals a cordial, but arms-length negotiation over potential remedies, none of which were articulated by either ION or PGS as requiring ION to defend PGS in a lawsuit or file an IPR. The relationship evidence relied upon by Patent Owner shows that ION and Petitioner at times shared publicly available information and trial witness times regarding the *ION* lawsuit, and had discussed the availability of witnesses for deposition. Exs. 2015, 2016. But this is not shared legal advice, nor does it rise to the level of strategic collaboration in this case. We are not persuaded that this is sufficient evidence of control or ability to control to establish privity.

Patent Owner argues, based on this evidence that "the parties strong relationship throughout the litigation makes them privies." PO Resp. 56. Patent Owner has not, however, explained sufficiently why, or how, the evidence of ION and PGS's relationship before, or during, the *ION* lawsuit is indicative of control. The weight of this evidence bears more heavily towards a finding that the relationship was contractual, a fairly conventional purchaser-manufacturer relationship, with discussions and communications undertaken generally at arms-length. Further, although PGS's and ION's dealings during the *ION* lawsuit may be indicative of cooperation to an extent, neither the evidence of cooperation nor collaboration in a joint defense is sufficient on this record to render ION and Petitioner privies.

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Accordingly, Patent Owner has not provided a sufficient factual basis upon which to conclude that Petitioner and ION are privies.

2. Whether ION is an Unnamed RPI Under 35 U.S.C. § 315(b)

The statute governing *inter partes* review proceedings sets forth certain requirements for a petition for *inter partes* review, including that "the petition identif[y] *all* real parties in interest." 35 U.S.C. § 312(a) (emphasis added); *see also* 37 C.F.R. § 42.8(b)(1) (requirement to identify real parties in interest in mandatory notices). The Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012) ("Practice Guide") explains that "[w]hether a party who is not a named participant in a given proceeding nonetheless constitutes a 'real party-in-interest' . . . to that proceeding is a highly fact-dependent question." 77 Fed. Reg. at 48,759. The Practice Guide further states that:

> However, the spirit of that formulation as to IPR and PGR proceedings means that, at a general level, the "real party-in-interest" is the party that desires review of the patent. Thus, the "real party-in-interest" may be the petitioner itself, and/or it may be the party or parties at whose behest the petition has been filed.

Id. (emphasis added). The determination of whether a party is an RPI is a "highly fact-dependent question" (*id.*), in which the focus is on the party's relationship to the inter partes review pending before the Board, and the degree of control the party can exert over the proceeding. *See Aruze Gaming Macau, Ltd. v. MGT Gaming, Inc.*, Case IPR2014-01288, slip op. at 11 (PTAB Feb. 20, 2015) (Paper 13). "[I]f a nonparty can influence a petitioner's actions in a proceeding before the Board, to the degree that

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would be expected from a formal copetitioner, that nonparty should be considered an RPI to the proceeding." *Id.* at 12.

Patent Owner asserts in its Response that ION is a real party-in-interest under the factors set forth in our Practice Guidelines because (a) Petitioner invoked ION's indemnity obligations by notifying ION that Petitioner expected ION to fulfill its obligations and pay for the lawsuit and this IPR proceeding; (b) ION was obligated to pay for this IPR and was instrumental in developing invalidity theories, thus, giving ION an "interest, opportunity to control, and active control over the Petition[;]" and (c) Petitioner is ION's proxy due to ION's obligation under the indemnification agreement. PO Resp. 58–59.

Although it does not cite to it in the relevant section IV. D. of its Patent Owner Response, Patent Owner's main contention, that ION has indemnified Petitioner, and thus controls this IPR, focuses on an indemnification provision in the 2008 Master Purchase Agreement ("Agreement," Ex. 2057) between PGSAS and [redacted], an ION subsidiary. *Id*. The Agreement is considered protective order material in this proceeding. *See* Ex. 2057, 14.

Our review of the Agreement, as discussed above with respect to the issue of privity, reveals no express language, context, or evidence that Patent Owner points to, that persuades us to interpret the language of the indemnification provision as requiring ION to defend a lawsuit, and, thus, extend the provision to include a specific obligation to defend, or pay for, a lawsuit filed against Petitioner or to undertake an IPR proceeding. Based on the evidence provided by Patent Owner, and for the same reasons set forth

supra, ION does not have an obligation to step in and defend Petitioner against a lawsuit or to otherwise pay for the defense of a lawsuit and advance Petitioner as ION's proxy.

3. Additional Discovery

Patent Owner next argues that the Board prejudicially denied Patent Owner additional discovery on the RPI and privity issue and that "[d]ue process, however, requires that Patent Owner be given the opportunity to seek this evidence, which is in the sole possession of PGS and otherwise unavailable to Patent Owner." PO Resp. 59 (citing Paper 31 ("Rehearing Request" or "Reh'g Req.")). In its Rehearing Request Patent Owner sought authorization to file a motion for additional discovery based on an Order from the first PGS IPR, (IPR2014-00688 (Paper 60)) denying additional discovery. We did not grant authorization for additional discovery following a telephone discovery conference with the parties in the IPR2014-00688 proceeding. Reh'g Req. 1–2; *see* IPR2014-00688 (Paper 60). That Patent Owner disagrees with our determination does not mean that our determination was prejudicial to Patent Owner.

Neither party in an AIA proceeding is entitled to unfettered discovery. Our rules proscribe *limited discovery*, and allow the Board to weigh evidence, discern the basis upon which a party moves for additional discovery and determine whether or not "additional discovery is in the interests of justice." 37 C.F.R.§ 42.51 (b)(2)(i). Patent Owner argued that it is entitled to additional discovery because there is purportedly a "hidden relationship" between PGS and ION. Reh'g Req. 1. As evidence of this "hidden relationship," Patent Owner asserts that Petitioner produced only

one indemnification agreement, that is, the Master Services Agreement, Exhibit 2057, discussed *supra*. *Id*. at 2, 6–7. Patent Owner contends that other agreements exist that evidence a privity relationship because "PGS has admitted to the existence of **multiple** indemnification agreements and requests for indemnification under those agreements." *Id*. (citing Ex. 2018; Ex. 3002, 21:21−22:17, 25:16−26:21).

The first and oft-disputed factor in determining whether additional discovery is necessary in the interests of justice is whether there exists more than a "mere possibility" or "mere allegation that something useful [to the proceeding] will be found." *Garmin Int'l, Inc. v. Cuozzo Speed Techs LLC*, Case IPR2012-00001, slip op. at 2-3 (PTAB Feb. 14, 2014) (Paper 20), "Order—Authorizing Motion for Additional Discovery" (listing factors to determine whether a discovery request is necessary in the interests of justice) ("the *Garmin* factors"). Under this first factor, a party should already be in possession of evidence tending to show beyond speculation that in fact something useful will be uncovered. *Id*. The discovery-seeking party only needs to set forth a threshold amount of evidence tending to show that the discovery it seeks factually supports its contention. *See Garmin*, Case IPR2012-00001, slip op. at 8-9 (Paper 26), "Decision—On Motion for Additional Discovery" (finding that, with respect to *Cuozzo's* contention of commercial success, *Cuozzo* failed to present a threshold amount of evidence tending to show that the requested discovery of sales and pricing information involved units with a nexus to the claimed features).

Having again considered Patent Owner's request for additional discovery we are not persuaded that additional discovery was prejudicially

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denied. First, the Master Services Agreement itself does not refer to any other documents or agreements, or otherwise disclose the existence of additional related indemnification provisions or such similar documents. *See generally* Ex. 2057. Secondly, although other agreements between ION and PGS and affiliates may exist, we have been apprised of no evidence that any of these other purported "multiple agreements" to which Patent Owner refers, have any relation to the underlying *ION* litigation, DigiFin product, or contain any specific language or provisions relating to an obligation on the part of ION to defend or indemnify PGS in a lawsuit or invalidity proceeding. *See* Ex. 2018. Patent Owner's Rehearing Request, as well as its Patent Owner's Response, is devoid of any evidence as to what is contained in, or required by such additional agreements, or that such purported additional agreements bear on PGS and ION's relationship in this IPR proceeding.

Patent Owner's lack of evidence pertaining to the substance or nature of any such "multiple agreements" was clear during the telephone discovery conference with the Board. During the discovery conference Patent Owner's counsel stated:

> 4 And we are seeking additional discovery
> 5 on those agreements because those agreements can
> 6 be case dispositive in showing privity between
> 7 Ion and PGS. . . .
>
> 14 We have evidence that there are
> 15 agreements out there, Your Honor. We want those

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16 agreements and the petitioner is not willing to
17 provide those to us.

Ex. 3002, 21:4–17. Patent Owner's counsel continued emphasizing the existence of such other agreements, explaining that:

14 An[] indemnification agreement can serve to
15 provide enough privity, or in the context of a
16 CBM for an indemnification agreement for one
17 company to have standing for CBM[,] we want to be
18 able to make the privity argument here through
19 these agreements, that privity alone can be shown
20 through these agreements if we can get our hands
21 on them.

Id. at 26:14–21. We agree to an extent with counsel's point here, e.g. that indemnification can, in certain cases, show privity. Patent Owner's argument, that an indemnification provision may support a finding of privity, is, however, simply attorney argument. The only evidence we can discern from the above statements and from the Rehearing Request is that Petitioner admits to other agreements with ION that may have indemnification provisions unrelated to these IPR proceedings. *See* Ex. 2018, 14. Our review of Petitioner's Responses to Patent Owner's Interrogatories in Exhibit 2018, indicates that Petitioner's counsel, David Berl, unambiguously stated that Petitioner had made no claims or demands to ION for indemnity with respect to the '607 patent.

> The PGS IPR Proceedings were filed by PGS. Although a PGS affiliate has informed ION that Patent Owner has asserted a claim relating to the use of devices provided by ION, neither PGS nor

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> its affiliates have made demands to ION concerning the Challenged Patents under any such warranty or indemnity provision.

Id.

In *Taylor*, the U.S. Supreme Court articulated the difficult burden of proof that Patent Owner faces here. *Taylor*, 553 U.S. at 907.

> We acknowledge that direct evidence justifying nonparty preclusion is often in the hands of plaintiffs rather than defendants. *See, e.g., Montana*, 440 U.S., at 155, 99 S.Ct. 970 (listing evidence of control over a prior suit). But '[v]ery often one must plead and prove matters as to which his adversary has superior access to the proof.' 2 K. Broun, McCormick on Evidence § 337, p. 475 (6th ed.2006). In these situations, targeted interrogatories or deposition questions can reduce the information disparity. We see no greater cause here than in other matters of affirmative defense to disturb the traditional allocation of the proof burden.

Id.

We are not now, as we were not during the discovery conference or in the Rehearing Request, persuaded that the mere existence of additional agreements between ION and Petitioner is sufficient evidence that something "useful" with respect to privity will be discovered. Something "useful" is something favorable in substantive value to a contention of the party moving for discovery. *Garmin* (Paper 26) at 7–8. We have not required that a party seeking additional discovery prove its contention as a prerequisite for obtaining the additional discovery. On the other hand, the mere existence of another agreement between ION and Petitioner does not without more, provide any evidence beyond speculation as to what is

substantively contained in that agreement or that privity will be found from an indemnification provision in such an agreement.

4. Multi Klient

Patent Owner argues that a new, and allegedly wholly owned subsidiary of Petitioner, Multi Klient Invest AS ("Multi Klient"), has been revealed in the district court litigation as an "interest[ed] parties concerning the subject matter of the '607 patent." PO Resp. 60 (citing Exs. 2014; 2015; 2016; 2017; 2062; 2063; 2064; 2065). The fact that Multi Klient may be related to Petitioner and is indicated as having a financial interest in the outcome of litigation, however, does not by itself indicate that Multi Klient is a real party in interest in this IPR, or has any ability to control the present IPR proceeding. *See* Ex. 2066 (referring to Paragraph 2 of Order for Pretrial Conference as determinative of "financially interested" defendants). Patent Owner cites generally to numerous exhibits without any factual analysis or explanation of the evidentiary relevance of these exhibits with respect to Multi Klient, Petitioner, and the real party in interest issue. PO Resp. 60. Accordingly, we are not persuaded by what is essentially bare attorney argument that Multi Klient is an RPI to this proceeding and deny Patent Owner's request to terminate this IPR.

IV. MOTION TO EXCLUDE EVIDENCE

Petitioner filed a Motion to Exclude Evidence seeking to exclude portions of the testimony of Robin Walker (Ex. 2099) and numerous other exhibits submitted by Patent Owner. Paper 52. The party moving to exclude evidence bears the burden of proving that it is entitled to the relief requested—namely, that the material sought to be excluded is inadmissible

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under the Federal Rules of Evidence. *See* 37 C.F.R. §§ 42.20(c), 42.62(a). Even without excluding this evidence, we have determined that Petitioner has established, based on a preponderance of the evidence, the unpatentability of claims 16–23 of the '607 patent. Furthermore, from Petitioner's listed Exhibits on page 1 of its Motion to Exclude, our Decision includes only material references to Exhibits 2059–61, 2083, 2099 and 2125. The remainder of the listed exhibits were not substantively considered for our Decision.

Petitioner challenges Exhibits 2059–2061 as hearsay. Exhibit 2059 is a written transcript of Patent Owner's videotaped deposition of ION employee John Thompson conducted during the *ION* lawsuit. Mr. Thompson's deposition was submitted by Patent Owner in this proceeding as confidential. Mr. Thompson's deposition is relied upon by Patent Owner essentially as a declaration, and like Patent Owner's other declarants, Petitioner had opportunity to cross-examine Mr. Thompson in this IPR proceeding. Additionally, Mr. Thompson's deposition testimony relates, at least in relevant part, to his email and attached press release also submitted by Patent Owner as Exhibits 2060 and 2061, and to which we refer to in this Decision. Mr. Thompson's deposition testimony relating to his own email is his own recollections, not those of another, and because Petitioner had the opportunity to cross-examine Mr. Thompson in this proceeding, his statements are not inadmissible.

The same analysis applies to the trial testimony of Dr. Bittleston and Mr. Williamson, to which we refer above from Exhibits 2083 and 2125. Dr. Bittleston's testimony from the *ION* lawsuit is his own understanding of the

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'607 patent, which bears his name as an inventor. Mr. Williamson's testimony relates to his recollections of customer and product feedback with respect to lateral steering. We find this prior trial testimony as similar to a declaration in this proceeding for which Petitioner had the opportunity to conduct cross-examinations and thus is not inadmissible.

Exhibit numbers for Exhibits 2101, 2108–2116, 2120, 2129, and 2130, are listed due to citation by Patent Owner, and for Exhibit 2099, Petitioner's hearsay and foundation arguments do not pertain to the particular paragraphs of Mr. Walker's testimony that we substantively considered with respect to nexus. Mr. Walker's testimony is not irrelevant because his arguments purporting to support nexus pertain at least to independent claim 15, from which claims 16–23 depend.

For these reasons, we deny Petitioner's Motion to Exclude.

V. MOTIONS TO SEAL

The Parties have filed multiple motions to seal in this proceeding pursuant to the Board's Default Protective Order entered in this proceeding. Paper 27. These motions indicate various portions of witness testimony, documents, and certain communications that are considered confidential or highly confidential and that may be subject to a protective order in the underlying district court proceedings as well. *See* Exs. 4, 16, 40, 49, 54, and 63.

We enter this entire Final Decision under seal, designated as FOR BOARD AND PARTIES ONLY. As set forth in our Order, below, the Parties shall meet and confer, and provide the Board with a proposed public version of this Final Decision within 15 days of the entry of this Final

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Decision, indicating by underlining, what portions of the Final Decision they propose to redact.

VI. CONCLUSION

We conclude that Petitioner has demonstrated by a preponderance of the evidence that (1) claims 16 and 17 of the '607 patent are obvious over the '636 PCT and Gikas, (2) claims 18–20 of the '607 patent are unpatentable as obvious over the '636 PCT, Gikas, and Spink, and (3) claims 21–23 are unpatentable over the '636 PCT, Gikas, Spink, and the '394 PCT.

This is a Final Written Decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

VII. ORDER

For the reasons given, it is

ORDERED that claims 16–23 of U.S. Patent No. 7,080,607 are determined by a preponderance of the evidence to be unpatentable;

FURTHER ORDERED that Patent Owner's request to terminate this proceeding due to Multi Klient AS is DENIED;

FURTHER ORDERED that Petitioner's Motion to Exclude is DENIED;

FURTHER ORDERED that Petitioner and Patent Owner shall meet and confer, and provide the Board with a proposed public version of this Final Decision within 15 days of the entry of this Final Decision. The proposed public version will indicate by underlining, what portions of the Final Decision the parties propose to redact; and

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

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