

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROOFR, INC.,
Petitioner

v.

EAGLE VIEW TECHNOLOGIES, INC.,
Patent Owner

Case IPR2023-00437
U.S. Patent No. 8,170,840

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	U.S. Provisional Application No. 61/197,904
2002	Certified Prosecution History of U.S. Patent No. 8,170,840
2003	DNJ-1-15-cv-07025-796 Verdict Form
2004	DNJ-1-15-cv-07025-799 Judgment
2005	DNJ-1-15-cv-07025-863 Order Denying Mot for New Trial
2006	DNJ-1-15-cv-07025-804 Inventor (Pershing) trial testimony
2007	DNJ-1-15-cv-07025-808 Expert (Stevenson) trial testimony
2008	DDE-1-21-cv-01852-1 Original Complaint (Roofr)
2009	DDE-1-21-cv-01852-12 Amended Complaint (Roofr)
2010	April 5, 2018 Memorandum
2011	Assignment Record for Pershing-789
2012	Assignment Record for '840 patent
2013	U.S. Patent No. 8,417,061 B2 to Kennedy
2014	Microsoft Word Comparison Petition to Cummings Declaration

I. INTRODUCTION

The Board should deny institution of *inter partes* review of claims 1-25 and 28 of U.S. Patent No. 8,170,840 (“the ’840 patent”). The Petition suffers significant and fatal deficiencies under Section 325(d) regarding whether key references qualify as prior art, and on the merits of its four obviousness Grounds. Amplifying these deficiencies, Petitioner fails to address known secondary considerations evidence and Petitioner’s expert advances opinions that are cut-and-paste copies of the Petition’s conclusory and flawed arguments. At bottom, Petitioner cobbled together Grounds based on previously considered art, failed to do its diligence with respect to the ’840 patent and thus overlooked key issues, and relies on expert testimony that is entitled to no weight under prevailing precedent.

Under Section 325(d) and *Advanced Bionics*, the Board should deny institution because Petitioner presents the same or substantially the same art that was considered during prosecution but does not even address the second part of the *Advanced Bionics* framework, which requires Petitioner to identify material error in the Office’s prior review of the art. The Petition relies on four references: Pershing-789, Kennedy, Bailey, and the Pictometry Article. During prosecution and in the same Office Action, the Examiner applied Pershing-789 to reject the claims and cited Kennedy as relevant art. Misapplying *Advanced Bionics*, Petitioner argues that because Kennedy was not applied in a rejection, it was not

substantively considered for purposes of Section 325(d). That is incorrect.

As to Bailey, it describes manual roof estimation procedures that are cumulative with the '840 patent's own background discussion, as well as background teachings in Pershing-789 and Kennedy. And Pictometry is substantially the same as Pictometry non-patent literature (NPL) that the Applicant cited and the Examiner considered during prosecution. Notably, Petitioner did not provide a certified copy of the prosecution history of the '840 patent, and thus overlooked the cumulative Pictometry NPL that was evaluated during prosecution.

The chart below summarizes the analysis under the first part of the *Advanced Bionics* framework and shows that the first part is satisfied.

Reference	The same or substantially the same under § 325(d)?
Pershing-789	Yes, applied in §102 rejection in August 2011 Office Action
Kennedy	Yes, cited by Examiner in August 2011 Office Action
Bailey	Yes, relied upon teachings (i.e., manual estimates and handwritten reports) cumulative with (at least) teachings in '840 patent's background, Pershing-789, and Kennedy, each of which was considered during prosecution
The Pictometry Article	Yes, relied upon teachings (i.e., distance and bearing tools) cumulative with (at least) the distance and bearing tools in the Pictometry Electric Field Study™ Getting Started Guide, which was considered during prosecution

Misapplying *Advanced Bionics* and failing to consider the complete prosecution history, Petitioner incorrectly argues the first part of *Advanced Bionics* is not satisfied and so the Board need not reach the second part. Petitioner thus does not address the second part and fails to identify any material error in the Office's prior review of the art. Accordingly, this is a quintessential case for discretionary denial under Section 325(d).

The Board should also deny intuition because Petitioner fails to demonstrate a reasonable likelihood that either Kennedy or Pershing-789 qualifies as prior art. Petitioner's failure with respect to Kennedy is twofold. First, Petitioner alleges that Kennedy qualifies as prior art as of the filing dates of its provisional applications but fails to perform *any* analysis to show that Kennedy is entitled to those dates. In fact, Petitioner did not even submit the relevant provisional applications into the record of this proceeding. Petitioner relies on Kennedy in each of the Petition's four Grounds, and thus this deficiency is dispositive and fatal to the Petition.

Second, the '840 patent was involved in the Xactware Litigation, which resulted in a jury verdict and subsequent court Order determining that independent claim 10 of the '840 patent was reduced to practice on January 1, 2008, which antedates Kennedy. Indeed, Kennedy (Exhibit 1009), at issue here, is the pre-grant publication of the Kennedy patent (referred to as "Sungevity" during the Xactware Litigation) that was successfully antedated during the Xactware Litigation.

Petitioner knew or should have known of the Xactware Litigation and the court's Order because Patent Owner discussed them in the original complaint it filed against Petitioner in the parallel proceeding. Despite having notice, Petitioner fails to address the January 1, 2008 reduction to practice, which disqualifies Kennedy as prior art. Petitioner's failure to contend with the prior ruling and key evidence showing that Kennedy is not prior art further demonstrates that Petitioner has not satisfied its burden for intuition.

Regarding Pershing-789, Petitioner alleges that Pershing-789 qualifies as prior art under Section 102(a) as of its publication date. But the January 1, 2008 reduction to practice also predates Pershing-789's publication date, and thus disqualifies Pershing-789 as prior art. Petitioner relies on Pershing-789 in Grounds 3 and 4, further warranting denial of those Grounds.

Turning to the merits, Petitioner's obviousness Grounds fail for at least two reasons. First, Petitioner fails to demonstrate a reasonable likelihood that the art discloses the claimed "pitch determination marker," which is a key claim element that was identified by the Examiner when allowing the claims. Second, Petitioner fails to address *known* evidence of secondary considerations of non-obviousness, including long-felt but unmet need, copying, and failure by others. Compounding these deficiencies, the opinions of Petitioner's expert, Mr. Cummings, are entitled to no weight and thus do not cure any of the Petition's fatal flaws. Mr. Cummings

merely repeats *verbatim* the arguments advanced in the Petition, which is inadequate to support the Petition's obviousness challenges under Federal Circuit and Board precedent.

In sum, there are four, independent reasons that the Board should deny institution: (1) discretionary considerations under Section 325(d), (2) because Petitioner fails to show that the primary references qualify as prior art, (3) because Petitioner fails to show that the references teach a key claim element, and (4) because Petitioner fails to address known evidence of secondary considerations. The Petition falls far short of satisfying the threshold for institution, and thus the Board should deny institution of review.

II. THE '840 PATENT

A. Overview

The '840 patent is generally directed to computer-implemented "systems and methods for determining roof measurement information based on one or more aerial images of a roof of a building." EX1001, 1:15-20. This technology improves upon, and overcomes limitations with, the manual procedure, typically performed by contractors, for performing roof estimates and generating handwritten reports. EX1001, 1:21-59. The '840 patent describes the familiar, manual procedure in which "homeowners would make an appointment with each roofing contractor to visit the house to determine the style of [the] roof, take measurements, and to

inspect the area around the house for access and cleanup.” EX1001, 1:25-30.

“Using this information, the roofing contractor then prepares a written estimate and then timely delivers it to the homeowner.” EX1001, 1:30-32.

Several factors—including the availability of personnel of the roofing contractors, the size of the roof, weather and traffic conditions, and the distance between the roofing contractor and the site of the estimate—impact roofing contractors’ ability to provide timely written estimates. EX1001, 1:35-52. Safety is also a concern because the manual procedure requires contractors to “climb up onto a roof to take measurement.” EX2005, 7.

The technology described and claimed in the ’840 patent “revolutionized the roofing industry” because it “obviated the need for manual measurements of roofs.” *Id.* “Generally speaking, the patented technology uses aerial pictures of a roof to create a three-dimensional graphical representation or model, from which accurate measurements of roof dimensions can be calculated to determine the cost of repairs.” *Id.* The technology has at least three key benefits: “improved safety,” “decreased measurement time,” and “increased accuracy.” *Id.*

More specifically, the ’840 patent is directed to an improved computer system for generating a roof estimate report through iterative user manipulation of an interactive graphical interface tool that is overlaid on aerial roof images, allowing a user to more accurately and reliably make iterative adjustments to a

computer-generated 3D model of a roof and output a tangible, improved roof analysis. Using the interface tool—referred to as a “pitch determination marker”—a user provides input that enables the system to update a model of the roof, which is in turn used to provide roof measurements. The ’840 patent claims specific improvements to a specific aspect of EagleView’s groundbreaking approach of using aerial images to generate three-dimensional roof models to obtain roof measurements, instead of physical site visits. The improvements include providing a “pitch determination marker operable to indicate pitch of a planar roof section”—a specific approach for analyzing the aerial images—and requiring the pitch determination marker be “overlaid on the aerial image” so that a user receives continuous visual feedback of how accurately the pitch has been indicated. *See* EX1001, claim 1; *see also id.*, 12:45-48 (describing “an interactive user interface control that can be directly manipulated by the operator in order to specify the pitch of a section of the building roof” called the “pitch determination marker.”), 12:16-13:48, FIGS. 5A-5D.

Each of the independent claims requires, among other things, displaying a pitch determination marker that is operable to indicate pitch of a planar roof section, wherein this indication of pitch is used to modify a model of the roof. EX1001, claims 1, 10, 16. As discussed below, Petitioner fails to demonstrate that the applied references teach or suggest this key feature.

B. Provisional Application No. 61/197,904

The '840 patent claims priority to, and is entitled to, the filing date of provisional application no. 61/197,904 (“the '904 provisional”), i.e., October 31, 2008. EX1001, (60). The table below identifies exemplary Section 112, ¶1 support in the '904 provisional for each of independent claims 1, 10, and 16 (using Petitioner’s claim nomenclature, Pet., xi-xiv (PDF pp. 12-15)).

Claim Element	Exemplary Support in the '904 provisional, EX2001
Claim 1a: A computer-implemented method for generating a roof estimate report, the method comprising:	“7. A computer-implemented method for generating a roof estimate report ...” EX2001, 0046 (claim 7’s preamble). “This invention relates to systems and methods for estimating construction projects, and more particularly, to user interface systems and methods for generating a roof estimate report based on one or more aerial images of a roof of a building.” EX2001, 0010. “Embodiments described herein provide enhanced computer- and network-based methods, techniques, and systems for estimating construction projects based on one or more images of a structure.” EX2001, 0013.
Claim 1b: displaying an aerial	“... displaying an aerial image of a building having a roof comprising a plurality of planar roof sections that

Claim Element	Exemplary Support in the '904 provisional, EX2001
image of a building having a roof comprising a plurality of planar roof sections that each have a corresponding pitch;	each have a corresponding pitch ...” EX2001, 0046 (claim 7). “The roof estimation system then obtains one or more aerial images showing at least portions of the roof of the building.” EX2001, 0014. “Figure 13 is roof estimation system screen display illustrating roof model generation based on multiple images of a building. In particular, Figure 13 illustrates the roof estimation system user interface after the operator has completed image registration, but before the operator has begun roof model construction.” EX2001, 0017, 0061 (FIG. 13).
Claim 1c: displaying a pitch determination marker operable to indicate pitch of a planar roof section, wherein the pitch determination marker is overlaid on the aerial image of the	“... providing a pitch determination control operable to indicate pitch of a planar roof section ...” EX2001, 0047 (claim 7). “In Figure 14, the operator utilizes a pitch determination control to specify the pitch of one of the planar roof sections. The pitch determination control appears as a dashed line emanating from the center of the crosshairs placed upon the large image.” EX2001, 0017, 0062 (FIG. 14).

Claim Element	Exemplary Support in the '904 provisional, EX2001
building having the roof;	“Figure 22 is a roof estimation system screen display illustrating a pitch determination tool in a first position. The pitch determination tool (an ‘envelope’ tool) is shown near the center top of the screen.” EX2001, 0019, 0070 (FIG. 22). “The method of claim 7 wherein the pitch determination control is an adjustable protractor control.” EX2001, 0047 (claim 8). “The method of claim 7 wherein the pitch determination control is an envelope tool.” EX2001, 0047 (claim 9).

Claim Element	Exemplary Support in the '904 provisional, EX2001
Claim 1d: receiving, based on the displayed pitch determination marker, an indication of the pitch of one of the plurality of planar roof sections of the roof of the building; and	“... receiving, via the provided pitch determination control, an indication of the pitch of one of the plurality of planar roof sections of the roof of the building ...” EX2001, 0047 (claim 7). “Figure 20 is a roof estimation system screen display illustrating a view of a roof model annotated with pitch values. ... The model has been annotated with pitch indicators. The illustrated pitches are determined based on the operator’s utilization of the pitch tool” EX2001, 0018, 0068 (FIG. 20). “Figure 23 is a roof estimation system screen display illustrating a pitch determination tool in a second position. In this example, the operator has moved the pitch determination tool over the roof of the house, and adjusted the angle of the ‘envelope’ so that it appears to lie atop two sections of the roof. Then, the roof estimation system determines the pitch of the roof sections, based on the configuration of the envelope with respect to the image and the reference plane.” EX2001, 0019, 0071 (FIG. 23).
Claim 1e:	“... updating a three-dimensional model of the roof based on the received indication of the pitch of the one

Claim Element	Exemplary Support in the '904 provisional, EX2001
modifying a model of the roof based on the received indication of the pitch of the one planar roof section.	planar roof section ...” EX2001, 0047 (claim 7). “Each identified roof feature is incorporated by the roof estimation system into a 3D model of the roof ...” EX2001, 0017. “As the operator draws a planar roof section onto one image, the roof estimation system concurrently projects the planar roof section into each of the other images, so that the operator receives feedback regarding the accuracy of the location and/or dimensions of the roof section. Generally, the roof estimation system can be configured to concurrently display any operator-identified features, such as corners, ridges, valleys, planar sections, and the like” EX2001, 0018.
Claim 10a: A computing system for generating a roof estimate report, the computing system comprising: a memory;	“11. A computing system for generating a roof estimate report, the computing system comprising: a memory ...” EX2001, 0047 (claim 11) <i>See Claim 1a.</i>
Claim 10b: a roof estimation module that is stored	“11. A computing system for generating a roof estimate report, the computing system comprising: ...

Claim Element	Exemplary Support in the '904 provisional, EX2001
on the memory and that is configured, when executed, to: display an aerial image of a building having a roof comprising a plurality of planar roof sections that each have a corresponding pitch;	a module that is stored on the memory and that is configured, when executed, to perform one or more of the methods of claim 1-9.” EX2001, 0047 (claim 11). <i>See Claim 1b.</i>
Claim 10c: display a pitch determination marker operable to indicate pitch of a planar roof section, wherein the pitch determination marker is overlaid on the aerial image of the building having the roof;	<i>See Claim 1c.</i>

Claim Element	Exemplary Support in the '904 provisional, EX2001
Claim 10d: receive, based on the displayed pitch determination marker, an indication of the pitch of one of the plurality of planar roof sections of the roof of the building;	<i>See Claim 1d.</i>
Claim 10e: modify a model of the roof based on the received indication of the pitch of the one planar roof section; and	<i>See Claim 1e.</i>
Claim 10f: provide roof measurement information based on the model of the roof, the roof measurement information including	“... providing a roof estimate report based on the three-dimensional model of the roof.” EX2001, 0047 (claim 7). “As the operator draws a planar roof section onto one image, the roof estimation system concurrently projects the planar roof section into each of the other images, so

Claim Element	Exemplary Support in the '904 provisional, EX2001
a measure of the pitch of the one planar roof section.	that the operator receives feedback regarding the accuracy of the location and/or dimensions of the roof section. Generally, the roof estimation system can be configured to concurrently display any operator-identified features, such as corners, ridges, valleys, planar sections, and the like" EX2001, 0018. "Figure 20 is a roof estimation system screen display illustrating a view of a roof model annotated with pitch values. ... The model has been annotated with pitch indicators" EX2001, 0018, 0068 (FIG. 20). "Review – This final step generates an outline of the measurements and allows for the labeling of Ridges and Valleys. The customer will see this in their report." EX2001, 0020.
Claim 16a: A non-transitory computer-readable storage medium whose contents enable a computing system to generate a roof estimate report for a building having a roof,	"11. A computing system for generating a roof estimate report, the computing system comprising: a memory; a module that is stored on the memory and that is configured, when executed, to perform one or more of the methods of claim 1-9." EX2001, 0047 (claim 11). <i>See Claim 1a.</i>

Claim Element	Exemplary Support in the '904 provisional, EX2001
by performing a method comprising:	
Claim 16b: displaying an aerial image of a building having a roof comprising a planar roof section that has a corresponding pitch;	<i>See Claim 1b.</i>
Claim 16c: displaying a pitch determination marker operable to indicate pitch of the planar roof section, wherein the pitch determination marker is overlaid on the aerial image of the building having the roof;	<i>See Claim 1c.</i>

Claim Element	Exemplary Support in the '904 provisional, EX2001
Claim 16d: receiving, based on the displayed pitch determination marker, an indication of the pitch of the planar roof section; and	<i>See Claim 1d.</i>
Claim 16e: modifying a model of the roof based on the received indication of the pitch of the planar roof section.	<i>See Claim 1e.</i>

C. Prosecution History¹

The application that issued as the '840 patent was filed May 15, 2009, and included 28 claims ("prosecution claims"). EX2002, 0101-06. On the same day,

¹ Patent Owner provided and cites to the Certified Prosecution History of the '840 patent (EX2002), which includes the non-patent literature (NPL) cited during prosecution.

the Applicant also filed an Information Disclosure Statement (IDS) disclosing a number of references, including two non-patent literature (NPL) references about Pictometry: a news article and a YouTube demo. EX2002, 0004 (NPL 5 and 8).

The Office issued the first Office Action on the merits on August 26, 2011, which included non-final rejections for obviousness-type double patenting and under Sections 101 and 102. EX2002, 0164-73. Relevant here, the Examiner applied Pershing-789 to reject all the prosecution claims under 35 U.S.C. § 102(e). EX2002, 0168-71. In the rejection, the Examiner recognized that Pershing-789 has a common inventor with the '840 patent, i.e., Chris Pershing. EX2002, 0168. In same Office Action, the Examiner cited Kennedy as “pertinent to applicant’s disclosure.” EX2002, 0171. The Examiner also considered the May 15, 2009 IDS, which disclosed, among other references, the two Pictometry NPL. EX2002, 0174-76. Accordingly, the Examiner considered Pershing-789, Kennedy, and the two Pictometry NPL in preparing the August 26, 2011 Office Action.

In response to the August 26, 2011 Office Action, the Applicant amended the independent prosecution claims with respect to the claimed “pitch determination marker,” and explained that Pershing-789 fails to disclose this

feature.² EX1002, 0184-95. On November 28, 2011, and January 10, 2012, the Applicant filed additional IDSs. EX2002, 0209-19, 0906-12. Notably, the November 28, 2011 IDS disclosed, among other references, seven additional Pictometry NPL, EX2002, 0218 (NPL 21-25, 30-31), including Pictometry's "Electronic Field Study™ Getting Started Guide," EX2002, 0858-72.

Subsequently, the Office issued a Notice of Allowance, allowing prosecution claims 1-28 (which issued as claims 1-28 of the '840 patent). EX2002, 0944-51. The Examiner considered the outstanding IDSs, including the seven additional

² Petitioner's argument that prosecution "focused on Pershing-789's alleged lack of the claimed 'pitch determination marker'" and that the applicant "did *not* dispute [the] Examiner's findings that Pershing-789 disclosed all of the other claim limitations," Pet., 17-18, neither relieves Petitioner of its burden of persuasion nor suggests that Patent Owner conceded that Pershing-789 teaches the "other claim limitations." *See Woods v. DeAngelo Marine Exhaust, Inc.*, 692 F.3d 1272, 1287 (Fed. Cir. 2012) ("A patent applicant is not presumed to have conceded the presence in the prior art of every claim limitation he had no reason to dispute."); *TorPharm, Inc. v. Ranbaxy Pharm., Inc.*, 336 F.3d 1322, 1330 (Fed. Cir. 2003) ("A patentee is not required to fight tooth and nail every possibly adverse thought an examiner commits to paper . . .").

Pictometry NPL. EX2002, 0949, 0959. And, in allowing the claims, the Examiner explained that neither Pershing-789 alone nor Pershing-789 “in combination with the prior [art] of record”—which included Kennedy and all the Pictometry NPL that the Applicant disclosed to the Office during prosecution—disclosed the combination of elements recited in the independent claims, including the claimed “pitch determination marker.” EX2002, 0949-50.

D. The Xactware Litigation

The '840 patent was involved in *Eagle View Technologies, Inc. v. Xactware Solutions, Inc.*, No. 1:15-cv-07025-RMB-SAK (DNJ) (the “Xactware Litigation”), in which a jury trial was held in September 2019. At trial, EagleView asserted independent claim 10 of the '840 patent (along with claims of other patents), which the jury determined was infringed and not invalid. EX2003, 2-3, 5; EX2004. Subsequently, Defendants moved for a new trial, which the court denied. EX2005.³

The court’s order denying a new trial made several rulings related to the validity of claim 10 of the '840 patent that are relevant here. EX2005, 25-34. First, the Defendants argued that the asserted claims were invalid based on “Sungevity,” a patent having “an earliest possible filing date of February 1, 2008.” EX2005, 28.

³ Reported as: *Eagle View Techs., Inc. v. Xactware Sols., Inc.*, 485 F. Supp. 3d 505 (D.N.J. 2020).

The court rejected this argument because there was sufficient evidence to support a jury finding that Sungevity was not prior art. EX2005, 28-29. Specifically, the evidence showed an actual “reduc[tion] . . . to practice by January 2008,” antedating Sungevity. EX2005, 28 (citing inventor Pershing’s trial transcript (Dkt. 804; EX2006) and EagleView expert Stevenson’s trial testimony (Dkt. 807; EX2007)).

Kennedy (Exhibit 1009), at issue here, is the pre-grant publication of Sungevity. *Compare* EX1009, (10), *with* EX2013, (65).

Second, in rejecting certain obviousness arguments, the court determined that EagleView presented “overwhelming evidence of secondary considerations of non-obviousness to the specific inventions and claims in this case.” EX2005, 34; *see id.*, 31-34. Specifically, the court held that “the evidence of the long-felt but unmet need satisfied by EagleView’s claimed inventions was overwhelming and unrebutted,” EX2005, 32, and that the evidence also supported jury findings of copying and failure by others, EX2005, 33 n.12.

Petitioner knew (or should have known) about the Xactware Litigation, including the court’s order discussed above and the evidence of secondary considerations of non-obviousness of the ’840 patent, because EagleView discussed them in the complaints filed against Petitioner/Defendant Roofr in the co-pending litigation. EX2008, 3-5 (¶¶14-18); *id.*, 4 n.1 (citing the court’s order);

EX2009, 4-6. Despite this notice, Petitioner does not address the January 2008 actual reduction to practice, which antedates Kennedy, or the “overwhelming evidence of secondary considerations of non-obviousness,” EX2005, 34, and thus (as discussed below) fails to demonstrate a reasonable likelihood of prevailing in this IPR.

III. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY THE PETITION UNDER § 325(d) AND *ADVANCED BIONICS*

The Director has the discretion to deny instituting a petition where “the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). The Board in *Advanced Bionics*⁴ “restat[ed] the framework in [§ 325(d)’s] statutory language” as a “two-part framework,” and clarified how the six, non-exhaustive *Becton, Dickinson*⁵ factors fit within the two-part framework. *Advanced Bionics*, 7-11. The policy undergirding the *Advanced Bionics* “framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.*, 9.

The first part of the *Advanced Bionics* framework considers “whether the

⁴ *Advanced Bionics v. Med-El Elektromedizinische Geräte GMBH*, IPR2019-01469, Paper 6 (P.T.A.B. Feb. 13, 2020) (precedential).

⁵ *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B. Dec. 15, 2017) (precedential: § III.C.5, first paragraph).

same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office,” *Advanced Bionics*, 8, which encapsulates *Becton, Dickinson* factors (a), (b), and (d), *id.*, 9-10. Critically, *Advanced Bionics* instructs that “[p]reviously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent.” *Id.*, 7-8. Following this guidance, Board panels have routinely held that art made of record by either the Examiner or applicant during prosecution but not applied in a rejection is sufficient to satisfy the first part of the *Advanced Bionics* framework. *See, e.g., Ivantis, Inc. v. Sight Sciences, Inc.*, IPR2022-01529, Paper 16, 17 n.8 (P.T.A.B. March 21, 2023) (explaining that “there is no requirement that [the] Examiner needs to rely on a reference in a rejection during prosecution in order for the reference to be ‘considered’ during prosecution” and citing *Advanced Bionics*); *Boragen, Inc. v. Syngenta Participations AG*, IPR2020-00124, Paper 16, 21-22 (P.T.A.B. May 5, 2020) (denying petition under § 325(d) and explaining that “a rejection applying a reference that is later relied upon by a petitioner is not a prerequisite to a finding that such reference was already presented to the Office under § 325(d)”).

Under the second part of the *Advanced Bionics* framework, “if either condition of [the] first part of the framework is satisfied, [the Board determines]

whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, 8; *see id.*, 10-11 (explaining that the second part of the test involves *Becton, Dickinson* factors (c), (e), and (f)). Examples of material error include “misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims” and “an error of law, such as misconstruing a claim term, where the construction impacts patentability of the challenged claims.” *Id.*, 8-9 n.9.

The petitioner carries the burden of demonstrating material error: “If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.*, 8-9; *see also Becton, Dickinson*, 17-18 (explaining that factor (e) asks “whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art”); *Microsoft Corp. v. AlmondNet, Inc.*, IPR2022-01319, Paper 9, 11 (P.T.A.B. January 30, 2023) (denying institution under § 325(d) where Petitioner did not sufficiently address whether the Office materially erred); *Microsoft*, IPR2022-01319, Paper 14 (P.T.A.B. April 23, 2023) (denying Petitioner’s rehearing request of decision denying institution). Notably, “[i]f reasonable minds can disagree regarding the purported treatment of the art or arguments, it cannot be said that the Office erred

in a manner material to patentability. At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Advanced Bionics*, 9.

Applying the *Advanced Bionics* framework, the Board should deny institution under § 325(d). Part one is satisfied because the Petition relies on the same or substantially the same (cumulative) art that was considered by the Office during original prosecution. At part two, Petitioner does not even attempt to show material error based on its incorrect belief that part one is not satisfied. Pet., 19.

A. The Petition presents the same or substantially the same art that was previously considered by the Office.

The corrected Petition advances the following four obviousness Grounds in which Kennedy and Pershing-789 are applied as primary references and Bailey and Pictometry are applied as secondary or tertiary references:

GROUND OF CHALLENGE (37 C.F.R. § 42.204(b)(2))

No.	Ground for Challenge
1	Kennedy And Bailey Render Obvious Claims 1-25 And 28 Of The '840 Patent
2	Kennedy, Bailey And Pictometry Render Obvious Claims 1-25 And 28 Of The '840 Patent
3	Pershing-789 And Kennedy Render Obvious Claims 1-25 And 28 Of The '840 Patent
4	Pershing-789, Kennedy And Pictometry Render Obvious Claims 1-25 And 28 Of The '840 Patent

Petition, x (PDF p. 11).

1. In the same Office Action, the Examiner applied Pershing-789 in a rejection and cited Kennedy as relevant art.

Primary references Pershing-789 and Kennedy were considered during prosecution. EX2002, 0164-73. In the first Office Action, the Examiner rejected all pending claims as allegedly anticipated by Pershing-789. EX2002, 0168-71. At the end of the same Office Action, the Examiner identified Kennedy as “pertinent to the applicant’s disclosure.” EX2002, 0171. Accordingly, the Examiner expressly considered both Pershing-789 and Kennedy in the same Office Action.

Petitioner concedes that Pershing-789 was “substantively considered” and applied to “reject[] all of the challenged claims as anticipated . . . during prosecution.” Pet., 17. Petitioner also concedes that “Kennedy is listed on the face of the ’840 patent and was noted as pertinent prior art.” Pet., 18 n.1. Petitioner, however, is incorrect that Kennedy’s consideration by the Examiner during prosecution “does not implicate § 325(d)” because Kennedy was not applied in a rejection. *Id.*

Petitioner’s contention is based on a non-precedential panel decision that pre-dates *Advanced Bionics*. *Id.* (citing the April 25, 2017 Decision on Institution in IPR2017-00178). The precedential *Advanced Bionics* decision clearly instructs that “[p]reviously presented art includes art made of record by the Examiner,” *Advanced Bionics*, 7-8, such as the Examiner’s citation of Kennedy during prosecution of the ’840 patent. *See also Ivantis*, Paper 16 at 17 n.8; *Boragen*, Paper

16 at 21-22. Despite acknowledging that the *Advanced Bionics* framework controls the § 325(d) inquiry, Pet., 17, Petitioner fails to faithfully apply this framework.

2. The teachings of Bailey and Pictometry upon which Petitioner relies are substantially the same as art that was considered by the Examiner during prosecution.

The teachings of secondary and tertiary references Bailey and Pictometry upon which Petitioner relies are cumulative with art considered during prosecution. In short, Bailey’s teachings are substantially the same as background teachings in the ’840 patent, Pershing-789, and Kennedy, each of which the Examiner plainly considered. But Petitioner does not even address Bailey in its § 325(d) arguments. *See* Pet., 17-19. Pictometry’s teachings are substantially the same as teachings in Pictometry NPL that was considered during prosecution. But Petitioner did not provide a certified copy of the ’840 patent’s prosecution history that includes the relevant NPL, and thus overlooked all of the Pictometry NPL that the Applicant cited and the Examiner considered. *Compare* EX1002 (Petitioner’s copy of the prosecution history), *with* EX2002 (certified copy of the prosecution history).

Bailey: Petitioner relies on Bailey in Grounds 1 and 2, but only for teaching performing manual roof estimates and generating handwritten reports. Pet., 26 (arguing that “Kennedy discloses nearly all of the limitations of the ’840 claims, and Bailey discloses generating a report as required by the claims”); *id.*, 26-36 (relying on Bailey only when addressing claim 1’s preamble); *see also* EX1010,

23-30 (describing the manual procedure for an inspector and a recorder to survey a roof and generate the roof inspection worksheet shown in Figure 10 of Bailey).

The '840 patent and Pershing-789 describe such manual procedures. For example, the background sections of the '840 patent and Pershing-789 (which have a common inventor: Chris Pershing) provide an identical description of performing manual estimates and generating written reports:

Heretofore, the homeowners would make an appointment with each roofing contractor to visit the house to determine the style of roof, take measurements, and to inspect the area around the house for access and cleanup. Using this information, the roofing contractor then prepares a written estimate and then timely delivers it to the homeowner.

EX1001, 1:27-32; EX1004, ¶6. Kennedy's background section also describes performing manual estimates: "sizing a homeowner's particular roof space including all the relevant features of that particular roof space typically requires an on-site visit by a technician." EX1009, ¶6.

Bailey's teachings are thus substantially the same as and cumulative with teachings that were applied (Pershing-789) and considered (the '840 patent's background and Kennedy) by the Examiner during prosecution. Petitioner's failure to address Bailey in its § 325(d) arguments confirms that Bailey is cumulative, satisfying step one of the *Advanced Bionics* framework.

Pictometry Article: Petitioner relies, in Grounds 2 and 4, on an article

about Pictometry in what appears to be the July 2002 edition of Law Enforcement Technology magazine (“Pictometry Article”). EX1008. This article, which discusses law enforcement and emergency services uses of Pictometry, is substantially the same as and cumulative with Pictometry NPL that the Applicant cited in IDSs and that the Examiner considered during prosecution. *See, e.g.*, EX2002, 0176 (when preparing the August 26, 2011 Office Action, the Examiner considered Pictometry NPL 5 and 8), 0959 (when issuing the Notice of Allowance, the Examiner considered Pictometry NPL 21-25 and 30-31).

Specifically, Petitioner relies on the Pictometry Article’s brief description of “a ‘distance tool’ which allows a user to measure things contained within the image” and a tool that can “be used for ‘measuring angles.’” Pet., 16, 58. The Pictometry Article explains that “the distance tool . . . allows the user to measure things contained within the image. For example, firefighters could measure the distance from fire hydrants in the area to the inflamed house while en route to a call to determine the length of the hoses they will need.” EX1008, 116. Regarding measuring angles, the Pictometry Article describes “a bearing tool that enables users to draw a line down a road, for example, and learn how many degrees from north the line is traveling. If there’s a fork in the road, users can utilize this tool to measure that angle.” *Id.*

These teachings in the Pictometry Article are substantially the same as—

and, in fact, less detailed—than teachings in the Pictometry NPL that the Examiner considered during prosecution. For example, the Applicant cited and the Examiner considered the Pictometry “Electric Field Study™ Getting Started Guide” (“Pictometry Guide”). EX2002, 0858-72 (providing a copy), 0959 (considering NPL 23). The Pictometry Guide describes several “Measurement tools,” including the “Bearing Tool” and the “Distance Tool,” describing them in more detail than the Pictometry article upon which Petitioner relies. EX2002, 0869-70. Other Pictometry NPL considered during prosecution are also cumulative with the Pictometry Article, such as Pictometry press releases and frequently asked questions, which describe (among other things) how law enforcement and emergency services can use Pictometry. EX2002, 0845-57, 0873-78.

Petitioner failed to provide a complete, certified copy of the ’840 patent’s prosecution history, and does not address the Pictometry NPL included therein.

The table below summarizes how each of Petitioner’s applied references are the same or substantially the same as art that was previously considered, and demonstrates that step one of the *Advanced Bionics* framework is satisfied.

Reference	The same or substantially the same under § 325(d)?
Pershing-789	Yes, applied in §102 rejection in August 2011 Office Action
Kennedy	Yes, cited by Examiner in August 2011 Office Action
Bailey	Yes, relied upon teachings (i.e., manual estimates and handwritten reports) cumulative with (at least) teachings in '840 patent's background, Pershing-789, and Kennedy, each of which was considered during prosecution
The Pictometry Article	Yes, relied upon teachings (i.e., distance and bearing tools) cumulative with (at least) the distance and bearing tools in the Pictometry Electric Field Study™ Getting Started Guide, which was considered during prosecution

Additionally, not only are the individual references applied in the Petition the same or substantially the same as those previously considered, the prosecution history demonstrates that the *combinations* advanced in the Petition are cumulative with the combined teachings of the references that the Examiner considered. In the Notice of Allowance, the Examiner stated that Pershing-789's teachings "alone or in combination with the prior [sic] of record" fail to disclose certain elements recited in the independent claims. EX2002, 0949-50. The prior art of record includes Kennedy and the Pictometry NPL. The Examiner thus considered combinations of Pershing-789, Kennedy, and the Pictometry NPL, which, for the reasons discussed above, form cumulative combinations with those Petitioner

advanced in Grounds 1-4 of the Petition.

For example, Ground 1 asserts the combination of Kennedy and Bailey, and Ground 3 asserts the combination of Pershing-789 and Kennedy. Bailey's teachings are cumulative with (at least) background teachings in the '840 patent and Pershing-789. The Examiner considered the '840 patent's specification, Pershing-789, and Kennedy in the August 2011 Office Action, and thus considered combinations that are substantially the same as those of Grounds 1 and 3. Grounds 2 and 4 merely add the Pictometry Article to the combinations of Grounds 1 and 3. The Pictometry Article is cumulative with Pictometry NPL that the Examiner considered. And the Examiner's statement in the Notice of Allowance that Pershing-789's teachings were considered in combination with the prior art of record demonstrates that the Examiner considered combinations (e.g., Pershing-789, Kennedy, and Pictometry NPL) that are substantially the same as those of Grounds 2 and 4.

In sum, the first part of the *Advanced Bionics* test is plainly met. Pershing-789 was applied during prosecution. And Petitioner misapplies *Advanced Bionics* with respect to Kennedy, does not address Bailey, and overlooked highly relevant Pictometry NPL because it failed to provide the certified copy of the '840 patent's prosecution history.

B. Petitioner does not address part two and thus fails to identify any material error in the Office’s prior evaluation of the art.

Petitioner’s arguments under § 325(d) hinge entirely on the first part of the *Advanced Bionics* framework. Pet., 19. With respect to the second part, Petitioner asserts only that “the Board does not have to address the second prong of the analysis.” *Id.* That is incorrect for the reasons above, and Petitioner’s failure to address the second part of *Advanced Bionics* is fatal to the Petition. *Advanced Bionics*, 8-9 (“If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute inter partes review.”); *Microsoft*, IPR2022-01319, Paper 9 at 11 (denying institution and explaining that “Petitioner’s assertion that the prior art references in the Petition ‘were not substantively considered during the prosecution of the [the challenged patent], or in the prior CBM challenge,’ without further explanation, is insufficient”); *Microsoft*, IPR2022-01319, Paper 14 at 5 (denying Petitioner’s request for rehearing of decision denying institution and rejecting Petitioner’s argument that “the only way Petitioner could have demonstrated Office ‘error’ was by showing that [the asserted reference] renders the challenged claims unpatentable” (emphasis omitted)).

* * *

In sum, the Board should deny institution under § 325(d) because the first

part of the *Advanced Bionics* framework is satisfied and Petitioner fails to identify material error (or even address the second part of the framework).

IV. PETITIONER FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD KENNEDY AND PERSHING-789 ARE PRIOR ART

The Board should deny institution because Petitioner fails to demonstrate a reasonable likelihood that either primary reference, Kennedy or Pershing-789, is prior art to the '840 patent. “[A]t the institution stage, the petition must identify, with particularity, evidence sufficient to establish a reasonable likelihood that the reference[s]” are prior art to the challenged patent. *See Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 13 (P.T.A.B. December 20, 2019) (precedential). “This standard is far more than is required in typical notice pleading, which only requires that a party make plausible claims.” *Id.*; *see also Apple Inc. v. Telefonaktiebolaget LM Ericsson*, IPR2022-00348, Paper 9, 4 (P.T.A.B. September 21, 2022) (“Among other obligations, a petitioner carries a burden of production to show *in its petition* that the asserted references qualify as prior art.” (emphasis added)).

A. Kennedy is not prior art.

Petitioner relies on Kennedy in each of the Petition’s four Grounds. Pet., x (PDF p. 11). The Board should deny institution because Petitioner fails to establish a reasonable likelihood that Kennedy is prior art under 35 U.S.C. § 102(e) for two, independent reasons: (1) Petitioner relies on Kennedy’s provisional dates but fails

to establish that Kennedy is entitled to those dates, and (2) Petitioner fails to address the January 1, 2008 actual reduction to practice, which antedates Kennedy.

1. Petitioner relies on Kennedy's provisional dates but fails to establish that Kennedy is entitled to those dates.

Petitioner acknowledges that “[t]he ’840 patent claims priority to a provisional application filed on October 31, 2008,” and alleges that “[a]ll of the references relied upon in the petition Grounds qualify as prior art” as of the October 31, 2008 priority date. Pet., 5. Kennedy is one such reference, and Petitioner relies on it in each of the Petition’s Grounds. Pet., x (PDF p. 11).

Kennedy is a published patent application that claims priority to two provisional applications that were filed on February 1, 2008, and April 22, 2008. EX1009, (60). Petitioner relies on these provisional filing dates to allege that Kennedy’s effective filing date is before October 31, 2008, and thus Kennedy qualifies as prior art under pre-AIA § 102(e). Specifically, Petitioner advances the following cursory, two-sentence argument:

U.S. Pat. Pub. No. 2009/0304227 A1 (“Kennedy”) is a U.S. Patent Publication published on December 10, 2009 claiming priority to provisional applications filed February 1, 2008 and April 22, 2008. Accordingly, Kennedy qualifies as prior art to the ’840 patent under at least pre-AIA § 102(e).
Pet., 5-6.

Petitioner provides no further support or analysis, and thus fails to

demonstrate a reasonable likelihood that Kennedy is entitled to priority under 35 U.S.C. § 119 to the filing dates of its two provisional applications and qualifies as prior art under § 102(e). A published patent application, like Kennedy, “can be entitled to the benefit of its provisional application’s filing date for pre-AIA 35 U.S.C. § 102(e) prior art purposes on two conditions.” *Google LLC v. Ikorongo Tech. LLC*, IPR2021-00058, Paper 14, 10 (P.T.A.B. May 10, 2021); *see also* EX2010, 1-2 (April 5, 2018 Memorandum); M.P.E.P. §§ 2136(I), 2163.03(III).

“First, the provisional application must provide sufficient support for at least one claim in the . . . published patent application.” *Google*, IPR2021-00058, Paper 14 at 10; *see also Amgen Inc. v. Sanofi*, 872 F.3d 1367, 1380 (Fed. Cir. 2017) (“[F]or a non-provisional application to claim priority to a provisional application for prior art purposes, ‘the specification of the provisional [application] must contain a written description of the invention . . . in such full, clear, concise, and exact terms, to enable an ordinarily skilled artisan to practice the invention claimed in the non-provisional application.’” (quoting *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015))); EX2010, 1; M.P.E.P. §§ 2136(I), 2163.03(III).

“Second, the provisional application must provide sufficient support for the subject matter relied upon for prior art purposes in the . . . published patent application.” *Google*, IPR2021-00058, Paper 14 at 11; *In re Giacomini*, 612 F.3d

1380, 1383 (Fed. Cir. 2010) (“[A]n applicant is not entitled to a patent if another’s patent discloses the same invention, which was carried forward from an earlier U.S. provisional application”); EX2010, 2; M.P.E.P. §§ 2136(I), 2163.03(III).

Petitioner made no attempt to demonstrate that either condition is satisfied. *See* Pet., 5-6. It has not attempted to show that the provisional applications provide support for any of Kennedy’s published claims. *Id.* Nor has Petitioner attempted to show that the provisional applications support the subject matter in Kennedy that Petitioner relies on to address the claim elements. *Id.* In fact, Petitioner did not even provide Kennedy’s provisional applications as exhibits in this proceeding.

Nor does Mr. Cummings’s declaration provide any assistance to Petitioner. He merely repeats *verbatim* the Petition’s two-sentence argument but provides no further analysis. *Compare* Pet., 5-6, *with* EX1003, ¶23. Accordingly, the Petition falls far short of satisfying the requirement to “identify, with particularity, evidence sufficient to establish a reasonable likelihood that” Kennedy is prior art under § 102(e). *See Hulu*, IPR2018-01039, Paper 29 at 13; *see also Google*, IPR2021-00058, Paper 14 at 12-17 (denying institution because the petitioner failed to satisfy both conditions to show that the reference-at-issue was entitled to the benefit of the filing date of its provisional application).

Petitioner does not argue that Kennedy is prior art as of its filing date or that

the '840 patent is not entitled to the benefit of its provisional filing date.⁶ *See* Pet., 5-6. Because Petitioner argues that Kennedy is prior art as of its provisional applications' filing dates, as opposed to Kennedy's filing date, Petitioner carries the burden to show in the Petition a reasonable likelihood that Kennedy is entitled to the benefit of the provisional applications' filing dates. *See In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[T]he Board must base its decision on arguments that were advanced by a party . . .”).

The Board's decision in *Apple* is instructive. *Apple*, IPR2022-00348, Paper 9 at 4-6. There, the patent-at-issue claimed priority to a provisional application filed November 4, 2016. *Id.*, 2-3. Like Petitioner here, Apple argued that the asserted references pre-dated the November 4, 2016 critical date, and alleged that two of the references (Agiwal and Abedini) qualified as prior art based on provisional filing dates without mentioning the references' filing dates. *Id.*, 4 n.2 (“The filing dates of Agiwal and Abedini predate the '915 patent's filing date. Petitioner did not argue that the references are presumptively prior art. Notably, the petition does not even mention the references' filing dates, only the filing dates of the references' provisional applications.”), 5 (“Here, Petitioner chose to advance Agiwal and

⁶ The '840 patent is entitled to the benefit of its provisional filing date, as shown in Section II.B (mapping the provisional to the independent claims).

Abedini as prior art based on priority claims to each reference’s provisional application.”). Explaining that “[t]he Board cannot adopt arguments on behalf of Petitioner,” *id.*, 4 n.2, the Board denied institution because Apple failed to establish that the references were entitled (under the AIA) to the filing dates of the provisional applications, *id.*, 6.

As in *Apple*, Petitioner argues that Kennedy is prior art as of its provisional applications’ filing dates but fails to establish a reasonable likelihood that Kennedy is entitled to the benefit of those filing dates. Because the Petition relies on Kennedy in every Ground, Petitioner’s failure to show that Kennedy is prior art under pre-AIA § 102(e) is dispositive and the Board should deny institution.

2. Petitioner fails to address the January 1, 2008 actual reduction to practice, which antedates Kennedy.

Petitioner fails to demonstrate a reasonable likelihood that Kennedy is prior art for a second, independent reason: Petitioner knew (or should have known) that, in the Xactware Litigation, Patent Owner established, and the court confirmed in its post-trial Order, that independent claim 10 of the ’840 patent was reduced to practice on January 1, 2008, which antedates Kennedy.⁷ Patent Owner discussed

⁷ Again, Kennedy (Exhibit 1009) is the pre-grant publication of the Kennedy patent (referred to as “Sungevity”) that was successfully antedated during the Xactware Litigation. EX2005, 26; EX2013; EX1009.

the Xactware Litigation and cited the court's post-trial Order in its original complaint (filed December 29, 2021) against Petitioner in the parallel litigation, EX2008, 4-5, providing notice of the '840 patent's relevant litigation history before Petitioner filed the Petition. Because Petitioner had notice of, but fails to address, the prior ruling and key evidence showing that Kennedy is not prior art, Petitioner fails to satisfy its burden to establish a reasonable likelihood that Kennedy is prior art. *See Hulu*, IPR2018-01039, Paper 29 at 13 ("This standard is far more than is required in typical notice pleading, which only requires that a party make plausible claims."). Additionally, discretionary factors that seek to avoid duplicative litigation and the risk of reaching inconsistent conclusions with district court determinations favor denying institution.

To establish an actual reduction to practice, a patent owner must show that the inventor(s): (1) constructed an embodiment or performed a process that meets all the claim elements; and (2) determined that the invention would work for its intended purpose. *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998). In the Xactware Litigation, Patent Owner established, and the court confirmed in its post-trial Order, that both requirements were satisfied to establish an ARTP of January 1, 2008, for independent claim 10 of the '840 patent (which was the only

asserted claim of the '840 patent).⁸ EX2005, 25-31; EX2003; Section II.D.

Specifically, “EagleView’s inventor, Mr. Chris Pershing, testified that . . . he reduced the inventions to practice by January 2008.” EX2005, 28; *see* EX2006, 552:16-554:19 (discussing claim 10 of the '840 patent and testifying that “EagleView first offered its products to consumers in January of 2008”).

EagleView’s expert, Professor Stevenson, corroborated Mr. Pershing’s testimony, testifying that he reviewed and tested EagleView’s products that were offered in January 2008 (“the Twister and Render House programs”) to confirm that they performed a process that meets all elements of claim 10 of the '840 patent.

EX2005, 28; EX2007, 1277:15-1278:25, 1284:24-1288:18. The chart below maps Professor Stevenson’s testimony to the elements of claim 10.

Claim Element	Exemplary Citations to Trial Testimony, EX2007
Claim 10a: A computing system for generating a roof estimate report, the	“Q. And let’s just do that briefly for the other remaining patents. For the '840 and '376, again, does Twister and Render House meet the first few elements of a computing system, memory, and roof estimation

⁸ Because independent claims 1 and 16 recite a method and computer-readable storage medium, respectively, that include the same or similar elements as claim 10, the January 1, 2008 ARTP also applies to claims 1 and 16. *See* Pet., 48-51, 73-76 (referring to claim 1 to address elements of claims 10 and 16).

computing system comprising: a memory;	module? A. Yes, for the same reason, it's a computer system, it has software." EX2007, 1284:24-1285:4.
Claim 10b: a roof estimation module that is stored on the memory and that is configured, when executed, to: display an aerial image of a building having a roof comprising a plurality of planar roof sections that each have a corresponding pitch;	<i>See Claim 10a.</i> "Q. Okay. And what about the aerial images, the aerial image requirement, we saw that already? A. Yes. This one only requires you to display one aerial image, but we display that one aerial image, certainly." EX2007, 1285:5-8.
Claim 10c: display a pitch determination marker operable to indicate pitch of a planar roof section, wherein the pitch determination marker is overlaid on	"Q. And what about the pitch determination marker, how does that happen in the Twister product? A. In the Twister product, you can see it's that wireframe that is being shown there. What I'm doing, kind of laid over the roof, what you see on the left image is I'm manipulating the pitch of the roof, I'm entering keyboard commands that's making that one roof section steeper, and you can see how the wireframe

the aerial image of the building having the roof;	drawing is moving appropriately. Now I'm making it worse, right? I'm moving it off the roof to show the impact, but you can see that I can change the pitch. The marker that I'm manipulating indicates that I'm changing the pitch. The video will show at times that the pitch is displayed up there. You can see the pitch highlighted in green up there on the top right-hand corner of the left-hand image. Q. You're talking right here, and as you are using the pitch determination marker, it's changing the pitch? A. Correct. Q. Okay. And what about Render House, does Render House also have a pitch determination marker? A. Yes. In a similar fashion, it's this wireframe that I can manipulate and adjust. Here I'm grabbing a part of the wireframe and dragging it around. A little harder to see that number there, but you can see at least visually how the -- I'm greatly exaggerating the pitch of the roof. In that red number, that's the pitch, is changing with my change -- with my manipulation of the pitch determination marker." EX2007, 1285:9-1286:10. "Q. Okay. And the next element is that -- and just to be clear, for Render House and Twister, did you find that that pitch determination marker was overlaid on the aerial image?
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	A. Yes.” EX2007, 1286:11-14.
Claim 10d: receive, based on the displayed pitch determination marker, an indication of the pitch of one of the plurality of planar roof sections of the roof of the building;	“Q. And so the next element is the receive element of the ’840 patent. How do you know that the Twister and Render House products receive, based on that displayed pitch determination marker, an indication of the pitch? A. Well, the system is clearly receiving it because the model is changing. You can see on the screen how the pitch is changing on the -- for Twister on the left, it shows it right on top of the corner of the screen. We saw it just move, change a moment ago. For Render House, it’s shown on the roof itself, a little hard to read, given the size, but I’ve kind of highlighted it there to bring it out. It shows currently that the pitch is a plus 4. Q. And again for the record, you are pointing to PTX-299 and 301 for these elements of the Twister and Render House embodiment.” EX2007, 1286:15-1287:4.
Claim 10e: modify a model of the roof based on the received indication of the pitch of the one planar roof section; and	“Q. Okay. And on the next slide, the Render House, for Render House, how does that -- how do you know that modifies a model of the roof? A. A similar sort of thing. You can see that, you know, based on my manipulation of the wireframe, the underlying model changes, and so, you know, the roof becomes more steep in the image on the right versus the image on the left before I made the modification. That

	means the underlying data structure that stores the model has been updated and changed. Q. And when you say the underlying model, what are you referring to? A. If you remember, the actual model is these kind of set of numbers inside the data structure inside the computer. That's what the model is. That's how we represent it in a computer system. What we see on the screen is a visualization of the model, a more easily human digestible form of the model. So, but at the end of the day I care about the numbers on the computer.” EX2007, 1287:16-1288:8.
Claim 10f: provide roof measurement information based on the model of the roof, the roof measurement information including a measure of the pitch of the one planar roof section.	“Q. Okay. And then the last element of the pitch determination marker is providing roof information, including the pitch, and then the roof report element. How do you know that Twister and Render House provide roof information that includes a pitch? A. You see it on the screen. Q. And you're pointing again to PTX-299 and 301. And then do they output the Roof Report? You already opined on that. A. Yes. So, also that information is also in the Roof Report.” EX2007, 1288:9-18

The January 1, 2008 ARTP disqualified Sungevity (the Kennedy patent)—“with an earliest possible filing date of February 1, 2008”—as prior art during the Xactware Litigation. EX2005, 28. Kennedy, submitted as Exhibit 1009, is the pre-grant publication of Sungevity and also has an earliest priority claim of February 1, 2008, EX1009, (60), and thus the evidence and holdings in the Xactware Litigation demonstrate that Kennedy is not prior art to the claims of the ’840 patent. Despite having notice, *see* EX2008, 4-5, Petitioner fails to even mention, let alone contend with, the prior ruling and key evidence showing that Kennedy is not prior art. Accordingly, the Board should hold that Petitioner has not demonstrated a reasonable likelihood that Kennedy is prior art and should deny institution.⁹

Moreover, discretionary considerations further favor denying institution. Board precedent seeks to avoid duplicative litigation and the risk of reaching inconsistent conclusions with district court determinations. *See, e.g., Apple Inc. v.*

⁹ This case is factually distinguishable from *Dynamic Drinkware* because, here, Petitioner knew (or should have known) when it filed the Petition that the challenged claims were entitled to a date of invention prior to Kennedy, but simply ignores or overlooks that evidence. *Cf. Dynamic Drinkware*, 800 F.3d at 1380 (explaining that the burden of production shifts back to the patent challenger once evidence of prior invention has been proffered).

Fintiv, Inc., IPR2020-00019, Paper 11, 6-7, 12-13 (P.T.A.B. March 20, 2020). As shown in the chart above, the evidence in the Xactware Litigation—which Petitioner had notice of but did not rebut—plainly shows that claims of the ’840 patent are entitled to a date of invention that predates Kennedy. So in addition to Petitioner’s failure to satisfy its burden with respect to showing that Kennedy is prior art, the Board should exercise its discretion and deny institution in order to avoid having to re-litigate this issue before the PTAB and to mitigate the risk of reaching an inconsistent result with the one reached in the Xactware Litigation.

B. The January 1, 2008 actual reduction to practice disqualifies Pershing-789 as prior art under § 102(a).

Petitioner also fails to demonstrate a reasonable likelihood that Pershing-789 qualifies as prior art because the January 1, 2008 ARTP disqualifies Pershing-789 as prior art under § 102(a). Pershing-789 was filed April 17, 2008, and published October 23, 2008. EX1004, (22), (43). Petitioner alleges that Pershing-789 qualifies as prior art under § 102(a) as of Pershing-789’s publication date. Pet., 9. The January 1, 2008 ARTP, discussed above, predates Pershing-789’s October 23, 2008 publication date, and thus disqualifies Pershing-789 as § 102(a) prior art.

Petitioner does not allege, and the Board should not entertain, that Pershing-789 qualifies as prior art under § 102(e) as of its filing date or of the filing date of the provisional to which it claims priority. *See* Pet., 9; *Magnum Oil Tools*, 829 F.3d at 1381 (“[T]he Board must base its decision on arguments that were advanced by

a party.”). Regardless, Section 103(c) disqualifies Pershing-789 as § 102(e) prior art for use in obviousness challenges, such as Grounds 3 and 4. Pershing-789 and the ’840 patent have a common inventor, Chris Pershing, and “were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.” 35 U.S.C. § 103(c)(1); EX2011 (first assignment to “Eagle View Technologies, Inc.”); EX2012 (same).

Petitioner has thus failed to demonstrate a reasonable likelihood that Pershing-789 qualifies as prior art, further warranting denial of Grounds 3 and 4.

**V. PETITIONER FAILS TO DEMONSTRATE A REASONABLE
LIKELIHOOD THE CLAIMS WOULD HAVE BEEN OBVIOUS**

“Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” *Graham v. John Deere Co. of Kansas City*, 383 US 1, 17 (1966). “Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Id.* at 17-18. “A determination of whether a patent claim is invalid as obvious under § 103 requires consideration of all four *Graham* factors, and it is error to reach a conclusion of obviousness until all those factors are considered.” *Apple Inc. v. Samsung Electronics Co., Ltd.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc); *see also id.* (“Objective indicia of nonobviousness must

be considered in every case where present.”).

The Board should deny institution on the merits because the Petition’s obviousness Grounds fail to demonstrate a reasonable likelihood of prevailing for at least two reasons: (1) Petitioner fails to demonstrate that either Kennedy (Grounds 1 and 3) or Pictometry (Grounds 2 and 4) discloses displaying the claimed “pitch determination marker operable to indicate pitch of a planar roof section”; and (2) Petitioner fails to address “overwhelming evidence of secondary considerations” that was publicly known before Petitioner filed the Petition, including long-felt but unmet need, copying, and failure by others, EX2005, 31-34. Additionally, Mr. Cummings’s opinions are entitled to no weight because they repeat *verbatim* the Petition, and thus they cannot save the Petition’s conclusory and fatally flawed arguments.

A. Petitioner fails to demonstrate that either Kennedy or Pictometry discloses displaying the claimed “pitch determination marker.”

Each of independent claims 1, 10, and 16 recites “display[ing] a pitch determination marker operable to indicate pitch of a planar roof section.” EX1001, 24:4-5, 24:48-49, 25:16-17. The ’840 patent describes two examples, which are shown in Figures 5B-5D. EX1001, 12:30-13:48.

The first example is “pitch determination marker 510 (also called a ‘protractor tool’),” shown in Figure 5B (below), which “includes arms 510a-510d.” EX1001, 12:43-50. “Arms 510a-510c are axes” and “[a]rm 510d is a ‘protractor’

arm that is adjustable by the operator *to specify roof pitch.*” EX1001, 12:50-54 (emphasis added). The configuration of the protractor arm 510*d* with respect to axis arms 510*a*-510*c* visually indicates the pitch of the roof. EX1001, 12:40-62, FIG. 5B.

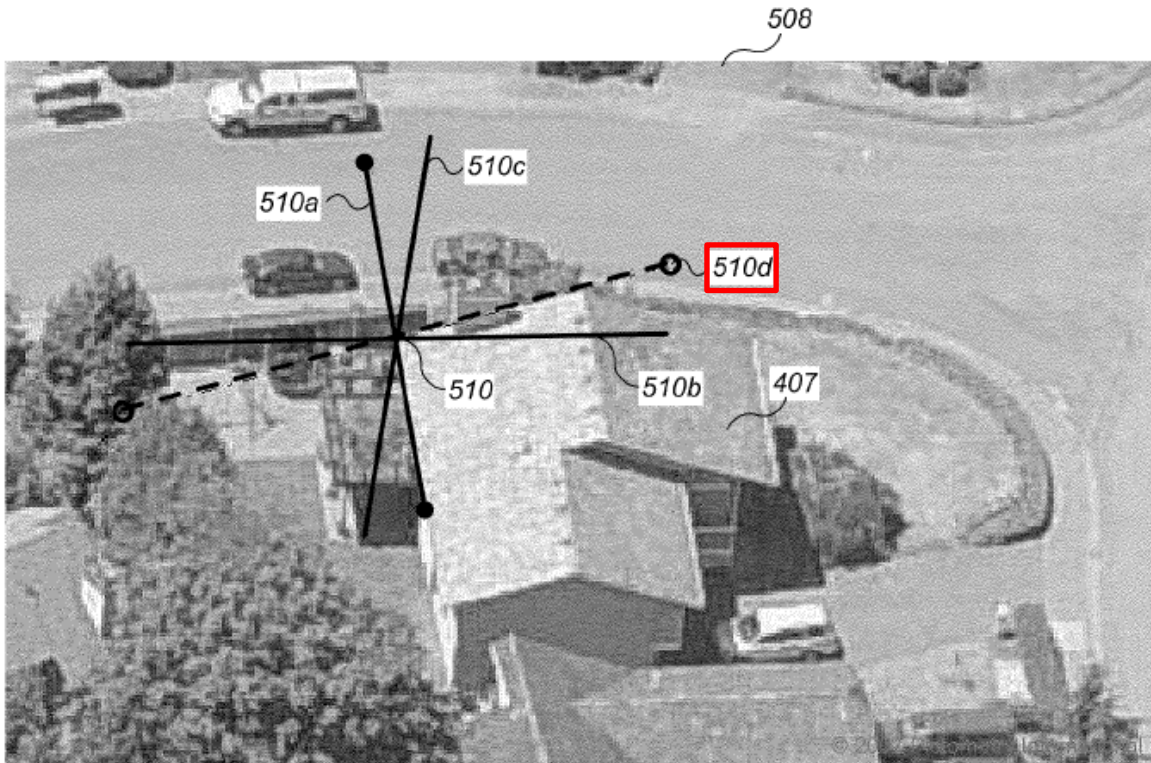


Fig. 5B

EX1001, FIG. 5B (annotated).

The second example is “pitch determination marker 520 (also called an ‘envelope tool’) that includes surfaces 520*a* and 520*b*,” shown in Figure 5D (below). EX1001, 13:11-13. “[T]he pitch determination marker 520 may be moved and/or adjusted so that it appears to lie substantially atop two adjacent planar

sections of roof 407,” such as in Figure 5D below where “the operator has used it to specify the pitch of two sections of roof 407.” EX1001, 13:17-23. As shown, “pitch indicators 521 and 522” display the pitches of surfaces 520a and 520b, respectively, and are “automatically updated” as the “operator adjusts the angle of surfaces 520a and/or 520b.” EX1001, 13:31-37. In Figure 5D, for example, “the pitch of both surfaces is given as 4 inches of rise per foot of run,” as shown by pitch indicators 521 and 522 below. EX1001, 13:38-39.

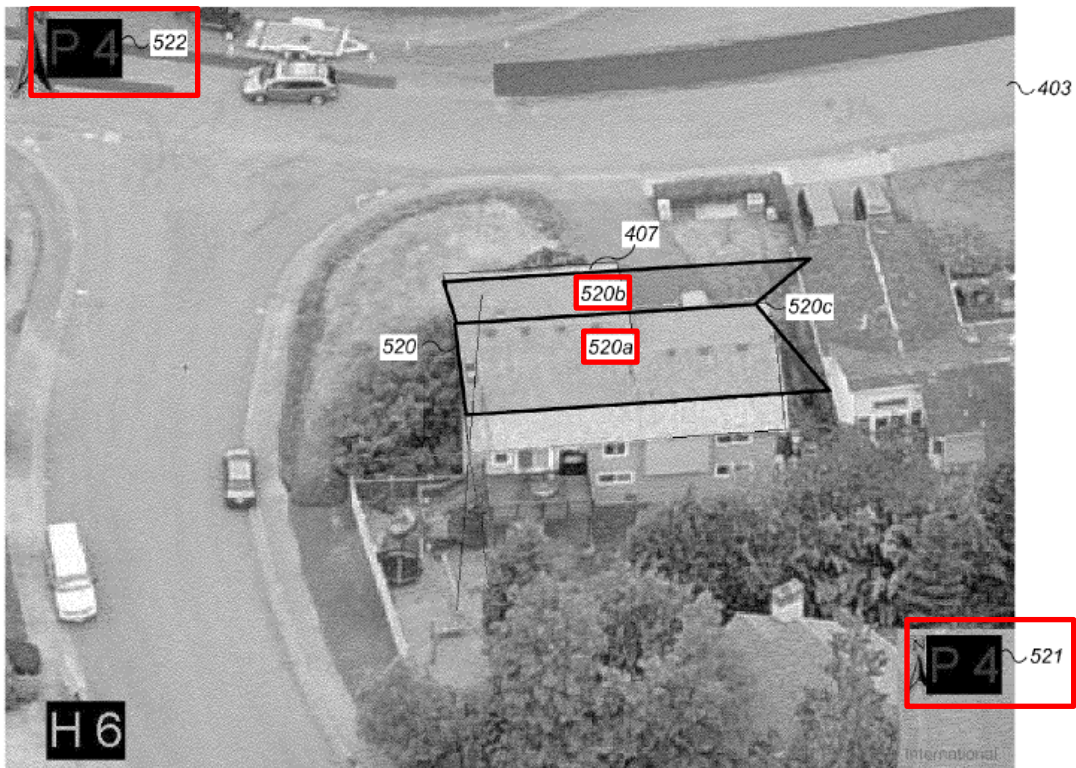


Fig. 5D

EX1001, FIG. 5D (annotated).

Accordingly, the pitch determination marker is described as “an interactive user interface control that can be directly manipulated by the operator in order to

specify the pitch of a section of the building roof 407.” EX1001, 12:45-48

(emphasis added), 13:14-17. Consistent with the specification, the claims recite “*displaying* a pitch determination marker” that is “*operable to indicate pitch* of a planar roof section.”

Neither Kennedy nor the Pictometry Article teaches or suggests displaying a pitch determination marker (or other graphical user interface control) that is operable to indicate pitch. In Grounds 1 and 3, Petitioner argues that Kennedy discloses this element, Pet., 32-35 (Ground 1), 67-69 (Ground 3), alleging that Kennedy’s “sizing tool (also called a ‘measuring tool’) is the claimed ‘pitch determination marker,’” Pet., 33. In Grounds 2 and 4, Petitioner argues that the Pictometry Article discloses the claimed pitch determination marker, Pet., 55-59 (Ground 2), 79-82 (Ground 4), alleging that “Pictometry’s measuring tool can be used as a ‘pitch determination’ marker that is overlaid on an aerial image,” Pet., 58. But neither Kennedy’s sizing tool nor the Pictometry Article’s measuring tool(s) is an interactive user interface control that is “operable to indicate pitch.”

Kennedy’s sizing or measuring tool measures distance between two points, which may be used by a “pitch calculator” in a sizing subsystem when calculating pitch, but the tool itself is not “operable to indicate pitch.” Petitioner points generally to Kennedy’s measuring tools 1150, 1107, and 1117 of Figure 11, and specifically to Kennedy’s description in paragraph 116 of using tool 1107 when

determining roof pitch. Pet., 33-35. In paragraph 116, Kennedy describes using measuring tool 1107 to “*measure displacement*” from a point in a base of a roof to a point in the ridge of the roof. EX1009, ¶116 (emphasis added). Specifically, Kennedy explains that the user “displaces measuring tool 1107 in the z direction from its position illustrated in FIG. 17 to the position illustrated in FIG. 18 [reproduced below], i.e., displaced by a distance d from base 635 to ridge 641.” *Id.* “FIG. 19 [reproduced below] illustrates a difference d between placement of measuring tool 1107 in FIG. 17 and placement of measuring tool 1107 in FIG. 18.” *Id.*

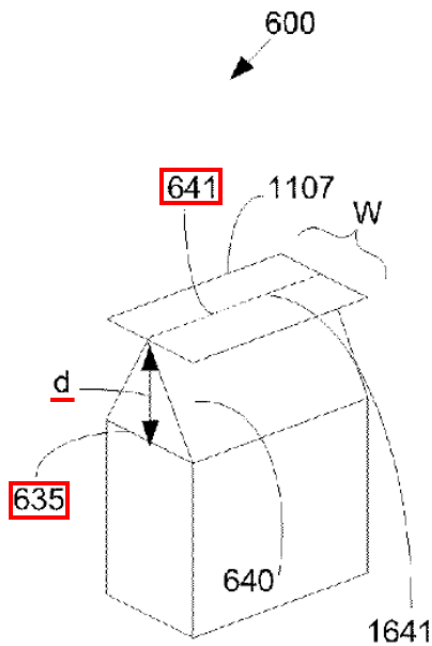


FIG. 18

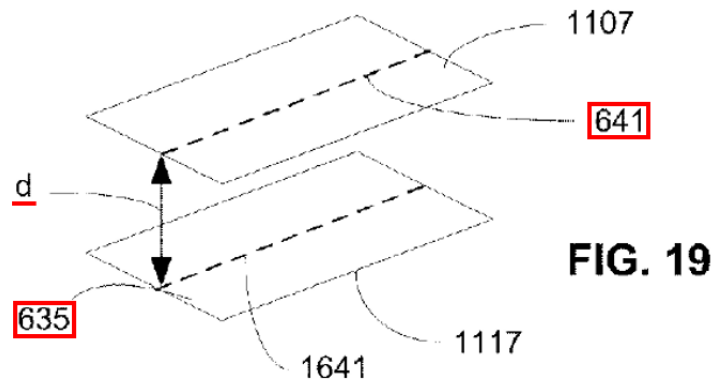


FIG. 19

EX1009, FIGS. 18-19 (annotated).

As shown above, “d” is simply the distance between two points; it does not

itself indicate the roof pitch. Instead, Kennedy explains that “[t]he difference measurement d is provided to modeling unit 591,” which, based on additional information including the “real world height,” can thereafter be used to determine the roof pitch. EX1009, ¶116; *see also id.*, ¶67 (explaining that various “measurements are provided to a pitch calculator” that “determines pitch”).

Petitioner acknowledges that “Kennedy discloses that the measuring tool *can be used to determine* the pitch of a roof,” but fails to explain how any of measuring tools 1150, 1107, and 1117 themselves are “operable to indicate pitch,” as required in the claims. Pet., 35. Mr. Cummings’s opinions merely repeat *verbatim* the arguments in the Petition, EX1003, ¶¶44-47, and, as discussed in more detail below, are not entitled to any weight under *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-16 (P.T.A.B. August 24, 2022) (precedential) and 37 C.F.R. § 42.65(a).

The Pictometry Article’s teachings are even further afield and less relevant to the claims than Kennedy’s teachings. Specifically, Petitioner relies on the Pictometry Article’s brief description of “a ‘distance tool’ which allows a user to measure things contained within the image” and a tool that can “be used for ‘measuring angles.’” Pet., 16, 58 (emphasis omitted). The Pictometry Article explains that “the distance tool . . . allows the user to measure things contained within the image. For example, firefighters could measure the distance from fire

hydrants in the area to the inflamed house while en route to a call to determine the length of the hoses they will need.” EX1008, 116. Regarding measuring angles, the Pictometry Article describes “a bearing tool that enables users to draw a line down a road, for example, and learn how many degrees from north the line is traveling. If there’s a fork in the road, users can utilize this tool to measure that angle.” *Id.*

Petitioner fails to demonstrate that either the distance tool or the bearing tool described in the Pictometry Article satisfies the claimed “pitch determination marker.” The Pictometry Article does not describe using either tool to estimate the pitch of a roof or that either tool is “operable to indicate pitch,” as required of the claimed “pitch determination marker.” Rather, like the measuring tool in Kennedy, the Pictometry Article describes the distance tool as allowing a user to measure the distance between two points, such as “the distance from fire hydrants in the area to the inflamed house while en route to a call to determine the length of the hoses they will need.” EX1008, 116. And, as its name suggests, the Pictometry Article explains that the bearing tool “enables users to draw a line down a road, for example, and learn *how many degrees from north* the line is traveling.” *Id.* (emphasis added).

Petitioner fails to explain how measuring distance or bearing (with respect to North) is the same as measuring pitch of a roof. It merely alleges that these tools “*can be used* as a ‘pitch determination’ marker,” but provides no support or further

explanation for its conclusory allegation. Pet., 16, 58 (emphasis added). And, again, Mr. Cummings’s opinions merely repeat *verbatim* the Petition’s conclusory arguments, EX1003, ¶¶37, 107, and thus are not entitled to any weight under *Xerox* and 37 C.F.R. § 42.65(a).

In sum, Petitioner fails to demonstrate a reasonable likelihood that either Kennedy (Grounds 1 and 3) or the Pictometry Article (Grounds 2 and 4) teaches or suggests displaying the claimed “pitch determination marker,” which is recited in each independent claim. Petitioner’s arguments, of which Mr. Cummings’s opinions are mere cut-and-paste copies, are conclusory and inconsistent with the teachings of the applied references. The Petition’s significant shortcomings are magnified here because Petitioner merely presents, in a conclusory manner, the same or cumulative art that the Examiner considered and the Applicant/Patent Owner overcame during prosecution. There is nothing new here, and Petitioner has not demonstrated that the Board should institute trial to re-evaluate the Office’s prior, sound determinations. The Board should thus deny institution on the merits.

B. Petitioner overlooks “overwhelming evidence of secondary considerations,” which it had notice of but does not address.

Secondary considerations of non-obviousness “may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Apple*, 839 F.3d at 1052-53 (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530,

1538-59 (Fed. Cir. 1983)). Evidence of secondary considerations “must be considered in every case where present,” *Apple*, 839 F.3d at 1048, and may be “crucial in avoiding the trap of hindsight . . . ,” *Leo Pharm. Prods., Ltd. v. Rea.*, 726 F.3d 1346, 1358 (Fed. Cir. 2013).

Contrary to Petitioner’s argument that “[a]t this stage of the[] proceeding[], Petitioners have no burden to identify and rebut secondary considerations,” Pet., 82,¹⁰ the Board has “cautioned petitioners in prior proceedings that petitions may be denied if they do not address known evidence of secondary considerations.” *Stryker Corp. v. KFX Medical, LLC*, IPR2019-00817, Paper 10, 28-29 (P.T.A.B. September 16, 2019); *see id.*, 29 (collecting Board decisions issued between 2013-2017); *see also Gilead Sciences, Inc. v. The United States of America, Represented by the Secretary of the Department of Health & Human Services*, IPR2019-01453, Paper 14, 26-30 (P.T.A.B. February 20, 2020) (finding that “Petitioner’s failure to persuasively address the [unexpected results presented during prosecution] in its Petition means Petitioner falls short of its burden to establish a reasonable likelihood of success in prevailing on its challenge”).

¹⁰ Petitioner cites the *Sega* and *Petroleum Geo-Services* decisions. The correct citations for these decisions are IPR2014-01453, Paper 11 (P.T.A.B. March 10, 2015) and IPR2014-01478, Paper 18 (P.T.A.B. March 17, 2015), respectively.

Stryker is instructive. Prior to the IPR, the patent-at-issue in *Stryker* was involved in district court litigation between the patent owner and a third party (non-party to the IPR), the “Arthrex Litigation.” *Stryker*, IPR2019-00817, Paper 10 at 2, 7-8, 27-30. “During the Arthrex Litigation, the jury considered evidence of secondary considerations and determined that the claims of the [patent-at-issue] are not obvious,” *id.*, 27, and the district court denied the defendant’s post-trial motion, arguing that the patent was obvious because “the jury’s verdict was supported by substantial evidence,” including “testimony of Patent Owner’s expert *and* the secondary considerations evidence of nonobviousness,” *id.*, 8. The Board in *Stryker* “point[ed] out that [the] Petitioner knew of the Arthrex Litigation” but “did not address the secondary considerations evidence in its Petition.” *Id.*, 28. On these facts, the Board held that “Petitioner’s failure to address the known evidence of secondary considerations” weighed in favor of discretionary denial, which was the basis for the Board denying the petition in *Stryker*. *Id.*, 29.¹¹

¹¹ That the Federal Circuit “summarily affirmed the district court’s decision [in the Arthrex Litigation] without rendering an opinion,” *Stryker*, IPR2019-00817, Paper 10 at 8, does not diminish the Board’s warning that petitioners risk non-institution if they fail to address *known* evidence of secondary considerations, *id.*, 28-29.

Similar to *Stryker*, the '840 patent was involved in the Xactware Litigation between Patent Owner and a third party, which resulted in a jury verdict and subsequent court Order holding claim 10 non-obvious in light of secondary consideration evidence of long-felt but unmet need, copying, and failure by others. EX2005, 31-34; Section II.D. Patent Owner's original complaint in the parallel litigation provided notice to Petitioner of the Xactware Litigation and the secondary consideration evidence. EX2008, 3-5 (¶¶14-18); *id.*, 4 n.1 (citing the court's Order). Despite having notice, Petitioner fails to address this key evidence, and thus "falls short of its burden to establish a reasonable likelihood of success in prevailing on its challenge." *Gilead*, IPR2019-01453, Paper 14 at 30.

C. Mr. Cummings's opinions are entitled to no weight because they repeat *verbatim* the Petition's conclusory arguments.

Mr. Cumming's opinions do not save Petitioner's challenges because his opinions are equally conclusory, merely repeating *verbatim* the Petition's arguments. "[C]onclusory expert testimony is inadequate to support an obviousness determination" *TQ Delta, LLC v. Cisco Systems, Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019); *see also Magnum Oil Tools*, 829 F.3d at 1380 ("To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements."). The Board does not credit declaration testimony that "merely repeats, verbatim, the conclusory assertion for which it is offered to support." *Xerox*, IPR2022-00624, Paper 9 at 15-16; *see also id.* at 15 ("[T]he cited

declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.”); 37 C.F.R. § 42.65(a).

The key substantive sections of Mr. Cummings’s declaration repeat *verbatim* Petitioner’s conclusory arguments presented in the Petition, and thus are not entitled to any weight. EX2014. As explained above, Mr. Cummings’s opinions alleging that Kennedy and the Pictometry Article disclose the claimed “pitch determination marker” repeat *verbatim* the Petition. *Compare* Pet., 32-35, with EX1003, ¶¶44-47; *compare* Pet., 58-59, with EX1003, ¶¶106-108. The same is true of Mr. Cummings’s opinions on motivation to combine. *Compare* Pet., 25-26 (Kennedy and Bailey), with EX1003, ¶¶38-39 (same); *compare* Pet., 55-57 (Kennedy and Pictometry), with EX1003, ¶¶100-105 (same). In his declaration, Mr. Cummings even states that “*Petitioner* has already explained why a POSITA would have been motivated to combine” certain teachings, EX1003, ¶¶105, 168 (emphasis added), misidentifying himself as the Petitioner and copying the Petition, Pet., 57, 81.

Mr. Cummings’s Declaration is the quintessential cut-and-paste copy of attorney argument that *Xerox* instructs should be given no weight.

VI. CONCLUSION

The Board should deny institution (1) under Section 325(d); (2) because

Petitioner fails to show that the primary references qualify as prior art; (3) because Petitioner fails to show that the references teach a key claim element; and (4) because Petitioner fails to address known evidence of secondary considerations. Compounding these deficiencies, the opinions of Petitioner's expert are entitled to no weight and thus do not cure any of the Petition's fatal flaws.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, reading "Richard M. Bemben". The signature is written in a cursive, flowing style with a large initial 'R'.

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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION,
TYPEFACE REQUIREMENTS, AND TYPE STYLE REQUIREMENTS**

1. This Patent Owner's Preliminary Response complies with the type-volume limitation of 14,000 words, comprising 12,408 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

2. This Patent Owner's Preliminary Response complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2016 in 14 point Times New Roman.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, reading "Richard M. Bemben". The signature is written in a cursive, flowing style.

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CERTIFICATION OF SERVICE

The undersigned hereby certifies that true and correct copies of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** and **EXHIBITS 2001-2014** were served electronically via e-mail on May 9, 2023, in their entireties on the following counsel for Petitioner:

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