

**United States Court of Appeals
for the Federal Circuit**

SAMSUNG ELECTRONICS AMERICA, INC.,
Appellant

v.

PRISUA ENGINEERING CORP.,
Cross-Appellant

2019-1169, 2019-1260

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2017-01188.

Decided: February 4, 2020

RICHARD L. RAINEY, Covington & Burling LLP, Washington, DC, argued for appellant. Also represented by KRISTIN COBB, ROBERT JASON FOWLER.

JOHN C. CAREY, Carey, Rodriguez, Greenberg & Paul, LLP, Miami, FL, argued for cross-appellant.

Before PROST, *Chief Judge*, NEWMAN and BRYSON, *Circuit Judges*.

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BRYSON, *Circuit Judge*.

Samsung Electronics America, Inc., appeals from a decision of the Patent Trial and Appeal Board in an inter partes review proceeding. Samsung petitioned the Board to rule that certain claims of U.S. Patent No. 8,650,591 (“the ’591 patent”), owned by cross-appellant Prisua Engineering Corp. (“Prisua”), were unpatentable. At the conclusion of the proceeding, the Board held that claim 11 of the ’591 patent was unpatentable based on obviousness. However, the Board declined to analyze whether claims 1–4 and 8 were unpatentable as anticipated or obvious, because it concluded that those claims were indefinite.

On appeal, Samsung contends that the Board should have canceled claims 1–4 and 8 for indefiniteness. In the alternative, Samsung argues that even if the Board was not statutorily authorized to cancel those claims for indefiniteness, it should have assessed whether they would have been anticipated or obvious in view of the cited prior art. Prisua cross-appeals from the Board’s ruling that claim 11 was unpatentable for obviousness. We affirm in part, reverse in part, and remand.

I

A

Congress has long permitted parties accused of patent infringement in federal court to challenge the validity of the asserted patent claims on any ground specified in part II of the Patent Act as a condition for patentability and for failure to comply with any requirement of 35 U.S.C. § 112. *See* 35 U.S.C. § 282(b)(2)–(3). Over the last few decades, Congress has supplemented federal court litigation by creating several administrative processes that authorize the Patent and Trademark Office (“PTO”) to reconsider and cancel wrongly issued claims in some circumstances.

In 1980, Congress established a regime known as “ex parte reexamination.” *See* Act to Amend the Patent and

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Trademark Laws, Pub. L. No. 96-517, 94 Stat. 3015 (1980), codified at 35 U.S.C. § 301 *et seq.* Ex parte reexamination gives “[a]ny person at any time” the right to “file a request for reexamination” based on certain prior art “bearing on the patentability” of an already-issued patent. 35 U.S.C. §§ 301(a)(1), 302. After institution, an ex parte reexamination follows essentially the same back and forth process between the patent owner and the examiner as in the initial PTO examination. 35 U.S.C. § 305.

Congress subsequently created a procedure known as “inter partes reexamination.” *See* Optional Inter Partes Reexamination Procedure Act of 1999, Pub. L. No. 106-113, 113 Stat. 1501A-567, codified at 35 U.S.C. § 311 *et seq.* (2006 ed.) (superseded). Inter partes reexamination gave third parties greater opportunities to participate in the reexamination process, but otherwise proceeded much like an ex parte reexamination.

The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), replaced inter partes reexamination with “inter partes review,” the procedure at issue in this case. *See* 35 U.S.C. §§ 311–19. Inter partes review, commonly referred to as IPR, provides patent challengers with even broader rights to participate in the process of re-evaluating patents, but it also sets limits on the process. A petition for inter partes review, for example, can request cancellation of claims “only on a ground that could be raised under section 102 or 103 [of the Patent Act] and only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b).

The AIA also created another administrative process called “post-grant review.” *See* 35 U.S.C. §§ 321–29. Unlike a petition for inter partes review, a petition for post-grant review can request cancellation of patent claims “on any ground that could be raised under paragraph (2) or (3) of section 282(b) [of the Patent Act] (relating to invalidity of the patent or any claim),” the same invalidity defenses

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long available to defendants accused of patent infringement in federal district court. 35 U.S.C. § 321(b).

Although a petition for inter partes review is limited to a narrow set of grounds, it can be requested at any time during a patent’s enforceability period, with certain restrictions. 35 U.S.C. §§ 311(c), 315(b). By contrast, the broad range of grounds that may be raised in a post-grant review petition are available only for a limited time after the patent is issued. 35 U.S.C. § 321(c).

B

In 2010, Dr. Yolanda Prieto applied for a patent aimed at providing a “new and unique form of enhancing” a user’s multimedia entertainment experience. ’591 patent, Abstract. The PTO granted the application in 2014. The issued patent, entitled “Video Enabled Digital Devices for Embedding User Data in Interactive Applications,” is directed to “generating an edited video data stream from an original video stream” by “substituting at least one object . . . in said original video stream by at least a different object.” ’591 patent, col. 1, ll. 43–47. Figure 3 illustrates the operation of the video image substitution according to one embodiment:

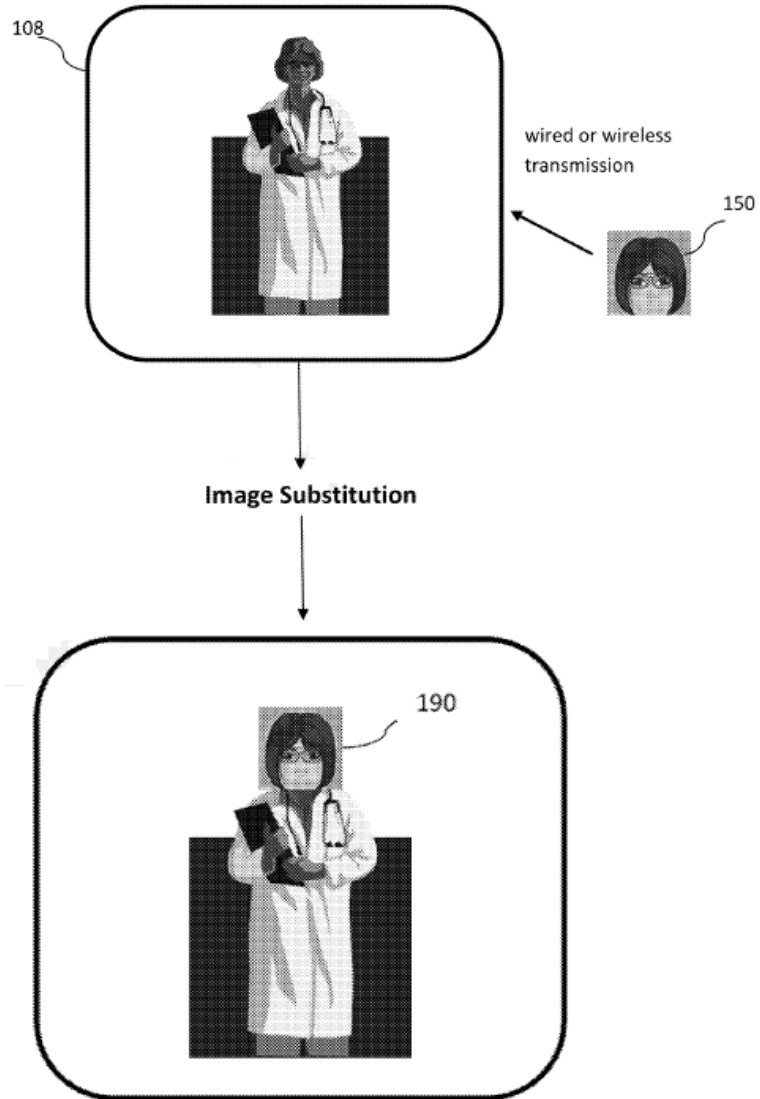


FIG. 3

As illustrated, a user can insert a selected image, such as a face of the user's choosing, in place of the face of the figure in the original video. *Id.* at col. 3, line 66, through col. 4, line 2.

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Claims 1–4, 8, and 11 of the '591 patent are at issue in this appeal. The claims are directed to methods and apparatuses for “generating a displayable edited video data stream from an original video data stream.” '591 patent, col. 7, ll. 14–16; *id.* at col. 8, ll. 28–29. Independent claim 1 reads in full as follows:

1. An interactive media apparatus for generating a displayable edited video data stream from an original video data stream, wherein at least one pixel in a frame of said original video data stream is digitally extracted to form a first image, said first image then replaced by a second image resulting from a digital extraction of at least one pixel in a frame of a user input video data stream, said apparatus comprising:

an image capture device capturing the user input video data stream;

an image display device displaying the original video stream;

a data entry device, operably coupled with the image capture device and the image display device, operated by a user to select the at least one pixel in the frame of the user input video data stream to use as the second image, and further operated by the user to select the at least one pixel to use as the first image;

wherein said data entry device is selected from a group of devices consisting of: a keyboard, a display, a wireless communication capability device, and an external memory device;

a digital processing unit operably coupled with the data entry device, said digital processing unit performing:

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identifying the selected at least one pixel in the frame of the user input video data stream;

extracting the identified at least one pixel as the second image;

storing the second image in a memory device operably coupled with the interactive media apparatus;

receiving a selection of the first image from the original video data stream;

extracting the first image;

spatially matching an area of the second image to an area of the first image in the original video data stream, wherein spatially matching the areas results in equal spatial lengths and widths between said two spatially matched areas; and

performing a substitution of the spatially matched first image with the spatially matched second image to generate the displayable edited video data stream from the original video data stream.

'591 patent, cl. 1. Claims 2–4 and 8 depend from claim 1 and add several limitations that are not pertinent to the resolution of this appeal. Independent claim 11 is a method claim that tracks the limitations of apparatus claim 1, with some minor differences. In particular, claim 11 does not have a limitation corresponding to claim 1's requirement of "an image display device displaying the original video stream." *Id.* On the other hand, claim 11 adds limitations that require the computation of "motion vectors associated with the first image" and the application of those motion vectors "to the second image, wherein the generated displayable edited video data stream resulting from the substitution maintains an overall motion of the original video data stream." *Id.*

C

After the '591 patent issued, Dr. Prieto formed Prisia to commercialize the invention claimed in the patent. In 2016, Prisia sued Samsung Electronics America, Inc., and several other Samsung entities for patent infringement. Prisia alleged that the “Best Face” feature on several Samsung devices, including cell phones, infringed claims 1, 3, 4, and 8 of the '591 patent. The “Best Face” feature, according to Prisia, allowed the accused devices to capture a burst of images and then replace unwanted facial images, such as images captured when someone was blinking, with better images from other frames in the same burst.¹

After being sued, Samsung petitioned for inter partes review of claims 1–4, 8, and 11 of the '591 patent on four separate grounds. The Board initially determined that it would review only whether a U.S. patent application publication known as Sitrick rendered claim 11 obvious. The Board declined to institute review of claims 1–4 and 8 on any ground, because it concluded that it could not determine the scope of those claims.

The Board concluded that there were two impediments to determining the scope of claim 1. First, the Board found that it was “unclear whether claim 1 covers, for example, an apparatus that includes a data entry device *capable of* being operated by a user to select the at least one pixel, or covers only the user actually operating the data entry device to select the at least one pixel.” *Samsung Elecs. Am., Inc. v. Prisia Eng'g Corp.*, No. IPR2017-01188, 2017 WL

¹ After a trial in the United States District Court for the Southern District of Florida, the jury found that Samsung willfully infringed the asserted claims and awarded Prisia \$4.3 million in damages. That action has been stayed pending this proceeding; the verdict in that case is not at issue in this appeal.

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4570373, at *5 (P.T.A.B. Oct. 11, 2017) (“*Institution Decision*”) (emphasis in original). For that reason, the Board concluded that claim 1 was indefinite under this court’s decision in *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). *Institution Decision*, 2017 WL 4570373, at *5-6. The Board also concluded that the “digital processing unit” limitation in claim 1 “invoke[d] § 112, sixth paragraph” and that the petition failed to identify any corresponding structure, as required by section 112 and the pertinent PTO regulation, 37 C.F.R. § 42.104(b)(3). *Institution Decision*, 2017 WL 4570373 at *6 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (*en banc*)). The Board found that claims 2–4 and 8, which depend from claim 1, were indefinite for the same reasons. Because the Board determined that it was unable to construe claim 1 or dependent claims 2–4 and 8, it concluded that the petitioner had not “established a reasonable likelihood of prevailing in showing that claims 1–4, and 8 are unpatentable under any of the asserted grounds.” *Id.*

As the IPR briefing was drawing to a close, the Supreme Court decided *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018), in which the Court held that when the Board institutes an IPR, it may not pick and choose which claims it will address, but must address the patentability of every claim challenged by the petitioner. Accordingly, the Board modified its institution decision to include all the challenged claims and all the grounds presented in the petition. The Board also allowed the parties to file supplemental briefs and evidence, but only to address the newly added claims and grounds.

In its supplemental briefing, Prisua stated that it did not agree with the Board’s indefiniteness determinations. Despite that, Prisua argued that because Samsung had failed to prove the claims were definite, the Board should not apply the prior art to the claims. Prisua also contended that the Board did not have the statutory authority to cancel claims for indefiniteness during an IPR.

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In response, Samsung urged the Board to cancel claims 1–4 and 8 based on the Board’s determination that those claims were indefinite under this court’s analysis in *IPXL*. In the alternative, Samsung argued that even if the Board could not cancel the claims for indefiniteness, it could still apply the prior art to the claims despite the *IPXL* issue. In support of that contention, Samsung argued that because the uncertainty regarding claim scope resulted from the combination of two statutory classes of invention, a manufacturer or seller of the claimed device would not know when infringement occurred. But that, according to Samsung, would not pose an obstacle to determining whether those claims could be measured against the prior art. Samsung also argued that the term “digital processing unit” constituted a sufficient recitation of structure and did not invoke means-plus-function analysis under 35 U.S.C. § 112 ¶ 6.

In its final written decision, the Board repeated its conclusion that claims 1–4 and 8 were indefinite under *IPXL*. *Samsung Elecs. Am., Inc. v. Prisia Eng’g Corp.*, No. IPR2017-01188, 2018 WL 5274000, at *7–8 (P.T.A.B. Oct. 2, 2018) (“*Final Written Decision*”). In addition, the Board again held that claim 1 and its dependent claims invoked section 112, paragraph 6, for the “digital processing unit” element, and that because there was no corresponding structure in the specification, the Board could not apply the prior art to the claims. *Id.* at *9. The Board therefore held that Samsung had not established that claims 1–4 and 8 were unpatentable under any of the asserted grounds. *Id.*

With respect to claim 11, the Board analyzed whether that claim would have been obvious in view of Sitrick, the sole originally instituted ground of review. After reviewing various record materials, including competing expert testimony, the Board found that all of the limitations of claim 11 would have been obvious in light of Sitrick, including the “digital processing unit” limitation. *Id.* at *11-19. The Board therefore held claim 11 to be unpatentable.

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II

On appeal, Samsung challenges the Board’s decision not to cancel the claims it found indefinite. In the alternative, Samsung contends that the Board should have applied the cited prior art to those claims.

A

We reject Samsung’s contention that the IPR statute authorizes the Board to cancel challenged claims for indefiniteness. In *Cuozzo Speed Techs., LLC v. Lee*, the Supreme Court said the Patent Office would be acting “outside its statutory limits” by “canceling a patent claim for ‘indefiniteness under § 112’ in inter partes review.” 136 S. Ct. 2131, 2141–42 (2016). This court subsequently echoed that view, stating—albeit in a non-precedential opinion—that “[i]n an IPR, the Board cannot declare claims indefinite.” *Google LLC v. Network-1 Techs., Inc.*, 726 F. App’x 779, 782 n.3 (Fed. Cir. 2018) (citing 35 U.S.C. § 311(b)); see also *Neptune Generics, LLC v. Eli Lilly & Co.*, 921 F.3d 1372, 1378 (Fed Cir. 2019) (holding that the Board is not authorized to address challenges to patent eligibility under 35 U.S.C. §101 in an IPR proceeding: “Congress expressly limited the scope of inter parties review to a subset of grounds that can be raised under 35 U.S.C. §§ 102 & 103.”).

Samsung asks us to reject those statements as dicta and to hold that even though the Board may not institute inter partes review based on a claim’s indefiniteness, it may cancel such a claim on indefiniteness grounds once it has instituted review on statutorily authorized grounds. We are not persuaded by Samsung’s arguments; we hold that the Board may not cancel claims for indefiniteness in an IPR proceeding.

The statutory provisions governing the inter partes review process do not permit the Board to institute inter partes review of claims for indefiniteness. Section 311(b),

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entitled “Scope,” states that “[a] petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b). Samsung, the petitioner in the IPR proceeding below, was thus not permitted to request that the Board cancel claims 1–4 and 8 on the ground that they were indefinite.

Nor could the Board cancel those claims as indefinite on its own accord. As the Supreme Court explained in *SAS*, Congress “chose to structure a process in which it’s the petitioner, not the Director, who gets to define the contours” of an IPR proceeding. 138 S. Ct. at 1355. “[T]he statute envisions that a petitioner will seek an inter partes review of a particular kind—one guided by a petition describing ‘each claim challenged’ and ‘the grounds on which the challenge to each claim is based.’” *Id.* (quoting 35 U.S.C. § 312(a)(3)). After analyzing the IPR statute and its predecessors, the Supreme Court concluded that it was clear that “the petitioner’s contentions, not the Director’s discretion, define the scope of the litigation all the way from institution through to conclusion.” *Id.* at 1357. The petition, that is, defines the scope of an IPR proceeding, and nothing in the IPR statute permits the Board to expand that scope in its final written decision.

1

Notwithstanding the foregoing authority, Samsung points to several provisions in the IPR statute in an effort to show that Congress authorized the Board to cancel claims for indefiniteness after an IPR has been instituted. None of those provisions, however, supports Samsung’s argument.

First, while section 311(b) limits the scope of an IPR petition to certain grounds that could be raised under sections 102 and 103, Samsung argues that section 318(a),

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which relates to the Board's final written decision, is not so limited. Section 318(a) directs the Board to "issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d)." 35 U.S.C. § 318(a). Samsung contends that the word "patentability" in section 318(a) is broader than the phrase "a ground that could be raised under section 102 or 103" in section 311(b). The difference, according to Samsung, indicates that the permissible scope of the Board's final written decision is broader than the permissible scope of the petition and the institution decision.

The problem with that argument is that it divorces the final written decision provision, section 318(a), from the rest of the inter partes review statute. Section 311(b) says that a petitioner may ask the Board "to cancel [challenged claims] as unpatentable" on certain 102 and 103 grounds. In context, it is clear that section 318(a)'s directive to the Board to issue a final written decision on the "patentability" of a challenged claim refers back to the grounds on which, under section 311(b), the petitioner may request the Board to "cancel as unpatentable" claims of the challenged patent, i.e., the designated section 102 and 103 grounds.²

Second, Samsung notes that the word "patentability" in section 318(a) modifies both "challenged" claims and "new" claims that are proposed during the inter partes proceeding. For that reason, Samsung suggests, the scope of the Board's review must be the same for both. And because

² The Director's certificate under section 318(b) "confirming any claim of the patent determined to be patentable" does not indicate that the Board has analyzed and confirmed the patentability of the subject claims against any possible ground of invalidity, as Samsung suggests. The certificate is merely a reflection of the analysis that the Board performed in response to the petition.

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it is undisputed that the Board may review newly added claims for compliance with section 112, Samsung argues that the Board must likewise be authorized to review challenged claims for unpatentability on section 112 grounds, including indefiniteness.

That argument overlooks the distinction the inter partes review statute draws between challenged claims and new claims that are added in the IPR proceeding. Section 316(d) allows patent owners to move to amend a patent during an IPR proceeding by substituting new or amended claims. Unlike section 311(b), section 316(d) does not limit the grounds for considering the unpatentability of those new claims under provisions other than sections 102 and 103.

Because the Board is charged with the responsibility under section 318(b) of “incorporating in the patent by operation of the certificate any new or amended claim determined to be patentable,” the Board’s authority with respect to new and amended claims necessarily extends to other possible grounds of unpatentability, in particular, a failure to comply with section 112. Because the statutory provisions governing challenged claims in an IPR differ importantly from those governing substitute claims, the term “unpatentability” necessarily has a different scope as to each.

Samsung next points to the post-grant review statute to support its argument that claims can be cancelled as indefinite at the conclusion of an IPR proceeding. Unlike a petition for inter partes review, a petition for post-grant review may be based on “any ground that could be raised under paragraph (2) or (3) of section 282(b) (relating to invalidity of the patent or any claim).” 35 U.S.C. § 321. Despite the difference in scope regarding what may be requested in post-grant review as opposed to inter partes review, the final written decision provision of the post-grant review statute mirrors the final written decision provision

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of the inter partes review statute. *See* 35 U.S.C. § 328 (“[T]he Patent Trial and Appeal Board shall issue a final written decision with respect to the *patentability* of any patent claim challenged by the petitioner and any new claim added under section 326(d).”) (emphasis added). Because there can be no dispute that review of “patentability” in the post-grant review statute encompasses indefiniteness, Samsung contends that when Congress used the same word in the inter partes review statute, it must have meant to authorize the Board to consider grounds of unpatentability other than those raised in the petition, such as indefiniteness.

To the contrary, the term “patentability” takes its meaning in each of the two statutory provisions from its particular context. Congress laid out the scope of inter partes review in section 311(b), at the beginning of Chapter 31 of Title 35. It laid out the scope of post-grant review in section 321(b), at the beginning of Chapter 32. Congress’s use of the word “patentability” in the final written decision provision of each chapter—in sections 318(a) and 328(a), respectively—most naturally refers to the previously defined scope of the particular review in question. Patentability for purposes of section 318(a) thus refers to the limited grounds of unpatentability described in section 311(b), and patentability for purposes of section 328(a) refers to the broader grounds of unpatentability described in section 321(b).

2

We also do not agree with Samsung’s contention that the Board’s inherent authority to perform claim construction during an inter partes review means that the Board can cancel the claims as indefinite. Although “indefiniteness analysis involves general claim construction principles,” *Sonix Tech. Co. v. Publications Int’l, Ltd.*, 844 F.3d 1370, 1378 (Fed. Cir. 2017), it does not follow that the Board may exceed its statutorily limited authority simply

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because an indefiniteness issue arises during claim construction. Instead, as discussed above, Congress viewed a challenge based on indefiniteness to be distinct from a challenge based on sections 102 and 103. As such, the proper course for the Board to follow, if it cannot ascertain the scope of a claim with reasonable certainty for purposes of assessing patentability, is to decline to institute the IPR or, if the indefiniteness issue affects only certain claims, to conclude that it could not reach a decision on the merits with respect to whether petitioner had established the unpatentability of those claims under sections 102 or 103.³ It would not be proper for the Board to cancel claims on a ground that is unavailable in an IPR.

3

In essence, Samsung's argument is that there is no limit to the Board's authority to make unpatentability determinations at the conclusion of an IPR proceeding. That position is at odds with both the statutory language and the case law, and we reject it.

B

Having rejected Samsung's argument that the Board may cancel challenged claims for indefiniteness during an IPR, we next address Samsung's secondary argument that the Board should have assessed the patentability of claims 1 and 4–8 under sections 102 or 103.

As noted, even though neither party raised the issue of indefiniteness below, the Board raised two indefiniteness

³ To be clear, in cases in which the Board cannot reach a final decision as to the patentability of certain claims because it cannot ascertain the scope of those claims with reasonable certainty, the petitioner would not be estopped by 35 U.S.C. § 315(e) from challenging those claims under sections 102 or 103 in other proceedings.

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concerns *sua sponte*. First, the Board concluded that claim 1 was indefinite under *IPXL*, because the claim recited both an apparatus and a method of using that apparatus. *Final Written Decision*, 2018 WL 5274000 at *6. Second, the Board concluded that the “digital processing unit” limitation of claim 1 invoked “means-plus-function” claiming under 35 U.S.C. § 112, ¶ 6, and that because Samsung did not identify any corresponding structure in the specification, the Board could not apply the prior art to claim 1 or its dependent claims. *Id.* Samsung contends that the Board’s analysis of the “digital processing unit” limitation was incorrect and that the *IPXL* issue did not prevent the Board from assessing the patentability of claims 1 and 4–8 under sections 102 or 103.

1

We agree with Samsung that the term “digital processing unit” is not a “means-plus-function” limitation subject to analysis under section 112, paragraph 6. Because the reference to the digital processing unit does not contain the words “means for,” there is a rebuttable presumption that section 112, paragraph 6, does not apply to that limitation. *Williamson*, 792 F.3d at 1348. That presumption can be overcome, but only “if the challenger demonstrates that the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *Id.* at 1349.

The question whether the term “digital processing unit” invokes section 112, paragraph 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter’s choice not to employ the word “means.” The Board pointed to no evidence that a person skilled in the relevant art would regard the term “digital processing unit” as purely functional. In fact, Prisua argued to the Board, based on testimony from its expert (the inventor), that the digital processing unit

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recited in the claims is “an image processing device that people in the art are generally familiar with.” J.A. 896.

As used in the claims of the ’591 patent, the term “digital processing unit” clearly serves as a stand-in for a “general purpose computer” or a “central processing unit,” each of which would be understood as a reference to structure in this case, not simply any device that can perform a particular function. *See, e.g., LG Elecs., Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1372 (Fed. Cir. 2006), *rev’d on other grounds, Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2008); *Inventio AG v. ThyssenKrupp Elevator Ams. Corp.*, 649 F.3d 1350, 1359 (Fed. Cir. 2011).

Significantly, that is what the Board found with respect to the use of the term “digital processing unit” in claim 11. *Final Written Decision*, 2018 WL 5274000, at *14 (“As a result, we are not persuaded by Patent Owner’s contention that ‘digital processing unit’ has a narrower definition than CPU. Sitrick discloses a general purpose computer with a CPU that is capable of performing all of the functions recited in claim 11. As a result, we are persuaded that Sitrick’s CPU teaches the recited ‘digital processing unit.’”). Moreover, claim 1 requires that the “digital processing unit” be operably connected to a “data entry device” such as a keyboard, which in turn is connected to other components. That portion of claim 1 constitutes further evidence of the structural nature of the term “digital processing unit,” as used in the claim.

The Board did not treat claim 11’s “digital processing unit” as simply a black box recitation of any structure capable of providing certain functions. Instead, the Board equated the term to a class of known structures—central processing units—that could be found in any general-purpose computer. *See Final Written Decision*, 2018 WL 5274000, at *14. The Board’s treatment of the “digital processing unit” limitation in claim 11 as structural in nature undermines its conclusion that the same term in claim 1

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was functional and thus subject to analysis under section 112, paragraph 6.

Given the Board’s findings with respect to claim 11, the context of the term in the claim at issue, and the presumption arising from the patentee’s failure to use the “means for” formulation, unrebutted by any evidence before the Board, we conclude that the Board erred in ruling that the term “digital processing unit” does not recite structure and instead is a purely functional term. We therefore reject the Board’s conclusion that the term “digital processing unit,” as used in claim 1, invoked means-plus-function claiming, and that for that reason claims 1 and 4–8 cannot be analyzed for anticipation or obviousness.⁴

2

The Board also concluded that claim 1 was indefinite because of an *IPXL* issue—a finding that neither party disputes. However, the Board did not address Samsung’s argument that the Board could nonetheless apply the prior art to claim 1 and its dependent claims for purposes of anticipation or obviousness analysis. In light of our decision to reverse the Board’s decision as to the “digital processing unit” term, we believe the Board ended its analysis with respect to the *IPXL* issue prematurely. We therefore remand for further consideration of that issue.

⁴ Pointing to the Board’s reference to 37 C.F.R. § 42.104(b)(3), Prisia argues that Samsung’s petition failed to present a proper claim construction for claim 1, and that the Board’s decision is supportable on that ground. The Board, however, referred to the regulation only “if one were to contend that claim 1 is an apparatus claim whose limitations are merely written in functional language.” *Final Written Decision*, 2018 WL 5274000, at *9. Samsung has not made such a contention, and we have rejected it.

On remand, the Board should address Samsung's argument that the Board may analyze the patentability of a claim even if that claim is indefinite under the reasoning of *IPXL*. The rationale of *IPXL* is that the claim conflates elements of both an apparatus and a method, rendering the claim indefinite for purposes of determining when infringement occurs. But that merely says that the claim is subject to invalidation on the ground of indefiniteness. It does not speak to whether the claim is also invalid for obviousness, regardless of whether it is treated as being directed to an apparatus or a method.

Even though the validity of the challenged claims may be subject to question for *IPXL*-type indefiniteness, that is simply another ground on which the claims might be challenged in an appropriate forum (other than the Board). See *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 453–55 (Fed. Cir. 1985) (upholding decision that patent was invalid for both indefiniteness and obviousness); *In re Collier*, 397 F.2d 1003, 1004–06 (CCPA 1968) (rejecting claim on grounds of indefiniteness and obviousness). It does not necessarily preclude the Board from addressing the patentability of the claims on section 102 and 103 grounds. In the remand proceedings, the Board should determine whether claim 1 and its dependent claims are unpatentable as anticipated or obvious based on the instituted grounds.⁵

⁵ The Board has previously held that *IPXL*-type indefiniteness does not prevent the Board from addressing patentability. See *Vibrant Media, Inc. v. Gen. Elec. Co.*, No. IPR2013-00172, 2014 WL 3749773 (P.T.A.B. July 28, 2014), *aff'd*, 626 F. App'x 1010 (Fed. Cir. 2015). Although the Board in this case suggested that its decision in *Vibrant Media* might be inconsistent with this court's decision in *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010), the statement in the *Enzo* case quoted by the Board—that “a claim cannot be both indefinite and

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III

In its cross-appeal, Prisua challenges the Board’s order holding claim 11 of the ’591 patent invalid for obviousness over the Sitrick prior art reference. We affirm the Board’s order with respect to that claim.

A

Prisua contends that Sitrick did not disclose the “capturing a user input video data stream” limitation, and that the Board ignored Prisua’s argument with respect to that limitation. Samsung responds that Prisua did not properly raise that issue before the Board, and we agree. None of the documents Prisua cites establish that Prisua timely presented any argument to the Board regarding the “capturing” limitation.

The documents Prisua points to as evidence that it presented an argument regarding that limitation to the Board consist mainly of material submitted during the supplemental briefing. When the Board, in response to the Supreme Court’s decision in *SAS*, modified its original institution decision to include all the claims and grounds raised in the petition, the Board authorized the parties to file supplemental briefs. The Board ordered that those briefs address only the newly added claims and grounds, not any issues that were already under review. Because the issue of the obviousness of claim 11 in view of Sitrick was part of the original institution decision, Prisua’s

anticipated”—did not involve *IPXL*-type indefiniteness and therefore did not resolve the question presented to the Board in this case. Our decision here is limited to *IPXL*-type indefiniteness and does not affect claims that are indefinite for other reasons. Moreover, our ruling in this case does not affect the disposition of cases in forums that are authorized to consider indefiniteness as a basis for invalidating a claim.

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supplemental briefing did not pertain to that issue. The supplemental briefing thus did not bear on the issues in Prisua’s cross-appeal, which involves only the obviousness of claim 11 in view of Sitrick.⁶

B

Prisua next argues that Sitrick does not disclose a “data entry device,” as recited in claim 11, and that the Board failed to analyze whether the alleged data entry device of Sitrick is “operably coupled with the digital video capture device,” as claim 11 requires. We conclude that substantial evidence supports the Board’s findings that Sitrick disclosed the “data entry device,” and that Prisua waived any argument regarding the “operably coupled” aspect of the limitation.

With respect to the “data entry device” limitation, the Board found that “a person of ordinary skill in the art would have understood Sitrick’s disclosure of a ‘general purpose computer’ to include a keyboard,” and that in any event it was not necessary for Samsung to establish that the general purpose computer disclosed in Sitrick necessarily has a keyboard. *Final Written Decision*, 2018 WL 5274000, at *13.

Prisua contends that Sitrick does not inherently disclose a keyboard, but Samsung did not argue to the contrary. Instead, Samsung argued only that Sitrick’s general purpose computer would necessarily include some type of data entry device, a keyboard being one example. After

⁶ Prisua made a cursory reference to the “capturing a user input video data stream” limitation in the background section of its patent owner response, but did not discuss that limitation in its nonobviousness argument. The Board was therefore correct in stating that Prisua did not argue that limitation.

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considering extensive record materials besides the Sitrick reference, including deposition testimony and competing expert declarations, the Board agreed with Samsung that Sitrick taught a data entry device.

That conclusion was supported by substantial evidence. In particular, it was reasonable for the Board to conclude that Prisua's expert, Dr. Prieto, conceded in deposition that the general-purpose computer disclosed in Sitrick would have a data entry device such as a keyboard. Although Dr. Prieto went on to explain that other special purpose hardware and software combinations disclosed in Sitrick might not always include a data entry device, that does not undermine the Board's conclusion that the disclosed general-purpose computer would include a data entry device. We see no reason to disturb the Board's evaluation and weighing of the evidence on that score.

We also do not believe the Board improperly skipped over the "operably coupled" aspect of the "using a data entry device" limitation, as Prisua suggests. In its preliminary patent owner response, prior to the institution of the IPR, Prisua argued that a video camera can serve as the source of image data, but need not be "operably coupled" to a general purpose computer to do so. However, after the Board rejected Prisua's argument in its institution decision, Prisua focused on the absence of a "data entry device" in Sitrick and did not address the "operably coupled" portion of that limitation. It was therefore reasonable for the Board to conclude that Prisua was no longer pressing any argument based on the "operably coupled" language, and to focus only on the arguments Prisua was continuing to make.

C

Prisua next argues that Sitrick does not teach or suggest the claimed step of "spatially matching an area of the second image to an area of the first image in the original video data stream, wherein spatially matching the areas

results in equal lengths and widths between said two spatially matched areas.” That step would, for example, require a user replacing an actor’s face with the user’s own to make sure the image of the user’s face was modified so that it matched the length and width of the image it was replacing. The Board found that Sitrick taught the use of image transformation techniques that met the “spatially matching” limitation recited in claim 11. The Board’s finding on that issue was supported by substantial evidence.

Prisua contends that although Sitrick discloses several image transformation techniques, none of them requires that the original and matched areas be of equal lengths and widths. Instead, Prisua says that one of the available techniques is chosen to “obtain the best” results, which is not the same as achieving “equal lengths and widths” for the original and matched areas. In the Sitrick reference, according to Prisua, achieving “equal lengths and widths” is merely a possibility, and thus that limitation is not disclosed sufficiently to establish obviousness.

In making its findings, the Board weighed both experts’ testimony regarding the “equal lengths and widths” limitation, and chose to credit Samsung’s expert’s testimony that the “morphing” technique disclosed in Sitrick involves an “exact one to one relationship between the first array of coordinates and the second array of coordinates—to align the points of the first image into the points of the second image, which would result in equal length and width.” *Final Written Decision*, 2018 WL 5274000, at *17 (internal quotations omitted). That assessment, the Board found, was enough to establish that Sitrick discloses the “equal lengths and widths” limitation. Prisua does not provide a convincing response to that evidence, and we see no reason to disturb the Board’s conclusion based on that evidence.

In an attempt to avoid that natural reading of Sitrick, Prisua contends that Sitrick specifically excludes the morphing technique, and that the Board therefore should

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not have relied on the testimony of Samsung's expert. We disagree. Although Sitrick discloses other transformation techniques that, unlike morphing, may not necessarily have resulted in equal lengths and widths, Sitrick undeniably discloses using morphing as one option. And the Board reasonably concluded that the morphing technique results in equal lengths and widths, thus satisfying the limitation at issue.

D

Prisua next contends that Sitrick does not teach or suggest the claimed requirements of selecting, identifying, and extracting at least one pixel from the user input video data stream to be used as the second image. In the claim, a spatially matched second image is what ultimately replaces the first image in the original video stream.

Prisua complains that the second image in Sitrick is modified before it is inserted in the substitution step, whereas the claim, according to Prisua, does not allow the second image to be modified before being inserted in the substitution step. We do not see how Prisua's argument has any bearing on the claimed requirements of selecting, identifying, and extracting at least one pixel from the user input video data stream.

The Board agreed with Samsung's argument that a user operating the Sitrick system would have to select at least one pixel in the user input video data stream in order for the system to analyze the user selected image.⁷ It is clear from Sitrick that the selection, identification, and extraction of at least one pixel in the disclosed system occurs before any alleged modification, and those steps are thus unaffected by whether there is a subsequent modification.

⁷ Contrary to Prisua's contention, Samsung's argument was not based on inherency, but merely recognized that the image to be analyzed consists of one or more pixels.

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Moreover, even if the inputs in the substitution step are modifications of the second image, that is consistent with the language of claim 11, which requires that the second image be “spatially matched” with the first image. Claim 11’s “spatially matching” requirement specifically contemplates modifying the second image so that it will have equal lengths and widths as the first image it is replacing.

Prisua also contends that the Board misunderstood the pertinent language of claim 11. In its final written decision, the Board stated, with respect to Sitrick, that “even assuming that user-specified image 137 is a texture map by the time it is an input 570 into subsystem 500, *that is not sufficient to show that an image was not originally selected, as the claim [of the ’591 patent] requires.*” *Final Written Decision*, 2018 WL 5274000, at *13 (emphasis added). Prisua argues that the emphasized language indicates that the Board misunderstood claim 11, because the claim recites that “at least one pixel” is selected, not that “an image” is selected. The Board, however, had previously credited Samsung’s explanation that Sitrick’s “user selected image” required the selection of at least one pixel. The Board’s finding in that regard, which was consistent with the testimony of Samsung’s expert, was supported by substantial evidence.

E

Lastly, Prisua contends that Sitrick does not teach or suggest the limitation of claim 11 that requires applying “motion vectors” so that the edited video data stream resulting from the substitution maintains the overall appearance of motion produced by the original video data stream.

That part of claim 11 recognizes that if an original video includes motion, one might want the user image that is being substituted into the original video to track that motion. For example, if the user wanted to replace an actress’s face with her own, the user would likely want to make sure the actress’s body did not move in a way that

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left the substituted face behind. In order to accomplish that objective, claim 11 requires that the motion vectors of the first image be computed and applied to the second image.

In concluding that the limitation providing for “applying the motion vectors in the second image” was taught in Sitrick, the Board reasonably credited Samsung’s expert testimony that motion vector information associated with the first image in Sitrick would be applied to the second image in order to maintain the placement and orientation of the second image in relation to the first image.

The Board found that testimony to be consistent with Sitrick’s disclosure that an “association means” would use computed motion vector information from a first audiovisual presentation to associate one or more replacement objects (i.e., second images) with a detected reference object (i.e., the first image). We therefore conclude that substantial evidence supports the Board’s finding that the “applying motion vectors to the second image” limitation of claim 11 was taught by Sitrick.

Because none of Prisia’s challenges to the Board’s analysis with respect to claim 11 have merit, the Board’s order that claim 11 is unpatentable for obviousness is affirmed.

Each party shall bear its own costs for this appeal and cross-appeal.

**AFFIRMED IN PART, REVERSED IN PART, AND
REMANDED**