

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

CYWEE GROUP LTD.,
Appellant

v.

ZTE (USA), INC., LG ELECTRONICS INC.,
Appellees

**KATHERINE K. VIDAL, UNDER SECRETARY OF
COMMERCE FOR INTELLECTUAL PROPERTY
AND DIRECTOR OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE,**
Intervenor

2021-1855

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2019-
00143.

Decided: January 18, 2024

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MICHAEL S. FORMAN, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA, argued for intervenor. Also represented by KAKOLI CAPRIHAN, FARHEENA YASMEEN RASHEED.

Before PROST, HUGHES, and STOLL, *Circuit Judges*.

PROST, *Circuit Judge*.

CyWee Group Ltd. (“CyWee”) appeals from an inter partes review (“IPR”) final written decision by the U.S. Patent Trial and Appeal Board (“Board”) determining that claims 1, 4–5, 14–17, and 19 of U.S. Patent No. 8,441,438 (“the ’438 patent”) are unpatentable and denying CyWee’s revised motion to amend its claims. *ZTE (USA), Inc. v. Cy-Wee Grp. Ltd.*, No. IPR2019-00143, 2021 WL 641742 (P.T.A.B. Feb. 17, 2021) (“*Board Decision*”). For the following reasons, we affirm.

BACKGROUND

I

The ’438 patent is directed to a “three-dimensional (3D) pointing device capable of accurately outputting a deviation including yaw, pitch and roll angles in a 3D reference frame and preferably in an absolute manner.” ’438 patent Abstract. The ’438 patent specification describes the

invention as “generally relat[ing] to a three-dimensional (3D) pointing device utilizing a motion sensor module and method of compensating and mapping signals of the motion sensor module subject to movements and rotations of said 3D pointing device.” *Id.* at col. 1 ll. 17–21. The ’438 patent also describes aspects of the invention as obtaining absolute 3D position measurements, *id.* at col. 4 ll. 15–19, eliminating accumulated errors resulting from combining measurements from motion sensors and gyroscopes, *id.* at col. 4 ll. 22–26, calculating position values in an enhanced way by comparing the outputs of rotation sensors and accelerometers, *id.* at col. 4 ll. 32–40, and providing a mapping of the position of the pointing device to display a corresponding movement on a display frame (e.g., a screen), *id.* at col. 4 ll. 43–52.

II

A

ZTE (USA), Inc. (“ZTE”) filed an IPR petition asserting that claims 1, 4–5, 14–17, and 19 of the ’438 patent are unpatentable. The Board instituted the IPR. LG Electronics, Inc. (“LG”) later filed an IPR petition challenging the ’438 patent and moved to join ZTE’s ongoing IPR. As LG acknowledges, its IPR petition was untimely because CyWee sued LG more than a year before LG filed its petition. Appellee’s Br. 5 (citing 35 U.S.C. § 315(b)). LG premised its request for joinder on several limitations, including that it would “act as a passive ‘understudy’ and [would] not assume an active role unless [ZTE] ceases to participate in the instituted IPR.” J.A. 5453.

While LG’s motion for joinder was pending, CyWee moved to amend its claims, contingent on cancellation of the ’438 patent’s original claims. The initial motion to amend included proposed claims 20–24.

ZTE opposed CyWee’s motion to amend, and the Board gave preliminary guidance regarding the initial motion to

amend. The Board's preliminary guidance found that the proposed claims lacked written-description support and introduced new matter and that proposed claim 23 was invalid over the asserted prior art.

The Board then granted LG's motion to join ZTE's ongoing IPR proceeding. The Board placed restrictions on LG's participation and ordered LG "(1) to consolidate filings with the current petitioner; (2) to rely on ZTE to take testimony and defend depositions; (3) to refrain from requesting or reserving any additional deposition or oral hearing time; and (4) to agree to 'other procedural concessions necessary to minimize complication or delay and result in a speedy trial with little or no impact on the ZTE IPR or the Board.'" J.A. 5605 (quoting J.A. 5453–54).

B

After LG's joinder, CyWee filed a revised motion to amend. CyWee's revised motion to amend included proposed revised claims 20–24. Relevant here, proposed revised claim 22 had the same limitations as proposed claim 22, and proposed revised claims 21 and 24 recited that the claimed 3D pointing device was limited to a cellular phone.

ZTE then indicated it did not oppose CyWee's revised motion to amend. J.A. 1401–02. LG, arguing that ZTE was no longer actively participating in the IPR, moved for leave to oppose CyWee's revised motion to amend.

Although the Board initially denied LG's request to oppose the revised motion to amend, LG sought rehearing, which the Board granted.

In the rehearing decision granting LG's request to oppose the revised motion to amend, the Board observed that while ZTE remained "an active participant with respect to ZTE's and [LG's] joint challenge to the original claims," "the trial no longer appear[ed] to be meaningfully adversarial" as to CyWee's revised motion to amend. J.A. 1438. The Board also noted that, in any event, it "must assess the

patentability of CyWee’s proposed amended claims.” J.A. 1439. The Board thus allowed LG “to present arguments and evidence, independently from ZTE, in response to CyWee’s Revised Motion to Amend.” J.A. 1440. The Board also explicitly noted that “CyWee may, of course, respond to any such arguments or evidence with its own rebuttal arguments or evidence.” J.A. 1440.

LG’s opposition to the revised motion to amend argued that proposed revised claims 20–24 would have been obvious over, among others, a combination of three references: Withanawasam,¹ Bachmann,² and Bachmann2.³ Notably, ZTE did not cite Withanawasam in its opposition to CyWee’s initial motion to amend. CyWee argued that this prior art combination did not teach several limitations of proposed revised claims 20–24.

C

The Board then issued its final written decision, determining that the challenged original claims are unpatentable as obvious and denying the revised motion to amend.

Relevant here, the Board determined that proposed revised claims 20–24 would have been obvious over Withanawasam, Bachmann, and Bachmann2. The Board first concluded that a skilled artisan would be motivated to combine Withanawasam and Bachmann because a skilled artisan would look to Bachmann’s known algorithm for fusing sensor data and would apply it to Withanawasam’s sensor set and because the combination “would merely involve the

¹ U.S. Patent Application Publication No. 2010/0312468 (“Withanawasam”).

² U.S. Patent No. 7,089,148 (“Bachmann”).

³ João Luis Marins et al., *An Extended Kalman Filter for Quaternion-Based Orientation Estimation Using MARG Sensors*, Proc. 2001 IEEE/RSJ Int’l Conf. on Intelligent Robots & Sys. (Oct. 29–Nov. 3, 2001) (“Bachmann2”).

routine engineering tasks of compiling the software of Bachmann for execution on the processor of Withanawasam.” *Board Decision*, 2021 WL 641742, at *59. The Board then concluded that the combination of Withanawasam, Bachmann, and Bachmann² disclosed all limitations of proposed revised claims 20–24. *Id.* at *60–71. The Board also determined that CyWee failed to show written-description support for the “cellular phone” limitation in proposed revised claims 21 and 24. *Id.* at *53–54.

After the Board’s final written decision, CyWee sought Director review, primarily regarding LG opposing the revised motion to amend. J.A. 1944–65. The United States Patent and Trademark Office (“PTO”) did not have an appointed Director at the time CyWee sought Director review, so the Commissioner for Patents, acting in the Director’s stead, reviewed and rejected CyWee’s request for Director review. J.A. 1966–68.

CyWee timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

CyWee challenges the Board’s denial of the revised motion to amend. Specifically, CyWee argues that (1) the Board erred by allowing LG to oppose the revised motion to amend and cite Withanawasam, (2) the Board erred by denying the revised motion to amend, and (3) the lack of opportunity for meaningful Director review mandates dismissal of the IPR. We address each argument in turn.

I

CyWee’s principal argument on appeal is that the Board erred by allowing LG to (1) oppose CyWee’s motion to amend in a manner that allegedly violated the terms of LG’s joinder and (2) raise Withanawasam in opposition to the revised motion to amend. For the following reasons, we conclude the Board did not err by allowing LG to oppose the revised motion to amend in the manner it did.

Statutory interpretation is an issue of law we review de novo. *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1330 (Fed. Cir. 2020). We review the Board’s application of its own procedures for abuse of discretion. *Ultratec, Inc. v. CaptionCall, LLC*, 872 F.3d 1267, 1271 (Fed. Cir. 2017). The Board abuses its discretion if its decision: “(1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact findings; or (4) involves a record that contains no evidence on which the Board could rationally base its decision.” *Id.* at 1272 (citing *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 442 (Fed. Cir. 2015)).

We first address CyWee’s argument that, by allowing LG to oppose the revised motion to amend, the Board allowed LG to violate the terms of its joinder. We find this argument unpersuasive. LG stated in its joinder motion that “as long as ZTE remains an active participant in the IPR, [LG] will take a passive ‘understudy’ role and work with ZTE to avoid procedural disruptions” and that LG “will assume the primary role only if ZTE ceases to participate in the IPR.” J.A. 5454. LG also agreed that it “shall not be permitted to raise any new grounds not already instituted by the Board in the ZTE IPR, or introduce any argument or discovery not already introduced by the original petitioner.” J.A. 5456. In the order granting LG’s joinder motion, the Board allowed LG to participate as a passive understudy “so long as ZTE remains active in the [IPR].” J.A. 5605.

When the Board allowed LG to oppose CyWee’s revised motion to amend, the Board concluded that although ZTE still participated in the IPR, the proceeding “no longer appear[ed] to be meaningfully adversarial” as to the revised motion to amend. J.A. 1438. We see no error in this conclusion; ZTE itself stated that it withdrew “all objections to the revised amended claims” and therefore that it did not “challenge the patentability of the revised amended claims”

or “oppose [CyWee’s] revised motion to amend.” J.A. 1401–02. ZTE’s own representations indicated that there were no adversarial proceedings regarding the ultimate outcome of the revised motion to amend. And, given the substantive importance of a motion to amend in the context of an IPR (in that it can lead to the issuance of new, otherwise unexamined claims), and that the terms of LG’s joinder relegated it to understudy status only insofar as ZTE “remain[ed] active in the [IPR],” *see* J.A. 5605, we see no error in the Board’s allowing LG to oppose the revised motion to amend.

CyWee next argues that LG could not raise Withanawasam in opposing the revised motion to amend because ZTE did not raise Withanawasam in opposition to the initial motion to amend. CyWee grounds this argument in two legal principles: (1) that the IPR statutory provisions prohibit LG, an otherwise time-barred party, from introducing new issues into the proceeding, and (2) that the procedures governing a revised motion to amend prohibit LG from raising arguments in opposition to a revised motion to amend that were not raised in opposition to the initial motion to amend. As we explain below, both arguments are unavailing.

We first address the argument that LG cannot introduce new issues into the proceeding as an otherwise time-barred party. CyWee observes that 35 U.S.C. § 315(c), the statutory provision governing IPR joinder, “does not authorize the joined party to bring new issues . . . into the existing proceeding.” *Facebook*, 973 F.3d at 1335. But that limitation exists because, among other reasons, “[t]he already-instituted IPR to which a person may join as a party is governed by its own petition and is confined to the claims and grounds challenged in that petition.” *Id.* at 1336 (citing *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018)). A motion to amend is different. The principle that the IPR statutory provisions permit consideration of only the grounds in the petition does “not apply in the context of

motions to amend where the patent owner has introduced new claims into the proceedings.” *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020) (concluding that “the Board should not be constrained to arguments and theories raised by the petitioner in its petition or opposition to the motion to amend”). We therefore fail to see why the § 315(c)-based limitation we articulated in *Facebook* is relevant to this issue.

We next address the argument that the revised-motion-to-amend procedures prohibit LG from making arguments in opposition to a revised motion to amend that were not made in opposition to the initial motion to amend. The language of the procedure CyWee points to provides that “[b]oth the opposition and the reply [to a revised motion to amend] may be accompanied by new evidence that responds to issues raised in the preliminary guidance, or in the corresponding revised [motion to amend] or opposition.” Notice Regarding a New Pilot Program Concerning Motion to Amend Practices and Procedures, 84 Fed. Reg. 9497, 9501 (Mar. 15, 2019) (“Notice”). CyWee fails to explain why language permitting the citation of new evidence in opposition to a revised motion to amend restricts the scope of that evidence. CyWee also invokes various regulations and Board decisions to support its argument, but these address only the scope of evidence that may be raised in a reply brief, not an opposition to a revised motion to amend. Appellant’s Br. 46–48; Reply Br. 23–25. We thus conclude that CyWee has identified nothing in the Board’s current procedures prohibiting LG from raising Withanawasam in opposition to the revised motion to amend.

CyWee also offers a more focused argument: that LG could not raise Withanawasam to demonstrate that proposed revised claim 22 is unpatentable because CyWee did not modify claim 22 between the initial and revised motion to amend. CyWee failed to raise this argument before the Board, so we decline to consider it. *In re Baxter Int’l, Inc.*,

678 F.3d 1357, 1362 (Fed. Cir. 2012).⁴ We do not address the extent to which the Board may permit evidence or arguments not raised in an opposition to an initial motion to amend to be raised in opposition to a revised motion to amend that does not modify the proposed claims.

II

CyWee also challenges the Board's denial of the revised motion to amend. CyWee argues that the Board erred in finding a motivation to combine the prior art and erred in concluding that there is no written-description support for the proposed revised claim limitation "cellular phone." We affirm the Board's motivation-to-combine finding and do not reach the written description issue.

We review the Board's conclusion as to whether a skilled artisan would be motivated to combine prior art references for substantial evidence. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1378 (Fed. Cir. 2023). "Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Id.* (quoting *Novartis AG v. Torrent Pharms. Ltd.*, 853 F.3d 1316, 1324 (Fed. Cir. 2017)).

Withanawasam discloses an integrated sensor device that purportedly reduces the footprint of sensors in a personal navigation device, such as a smart phone. J.A. 4208. The sensor and computer in Withanawasam are in a single, integrated device. J.A. 4208. Bachmann discloses an

⁴ After oral argument, CyWee filed a letter providing record citations demonstrating where it purportedly made this argument to the Board. Supplemental Submission (Sept. 6, 2023), ECF No. 76. None of these citations demonstrate that CyWee argued that LG could not raise Withanawasam to demonstrate the unpatentability of proposed revised claim 22 because CyWee did not modify claim 22 between the initial and revised motions to amend.

algorithm for determining the orientation of a sensor in three-dimensional space. J.A. 2613.

In concluding that a skilled artisan would combine Withanawasam and Bachmann, the Board credited the testimony of LG's expert. LG's expert explained that because Withanawasam does not explicitly disclose algorithms to evaluate the orientation of its sensors, a skilled artisan would look to a method for mathematically determining sensor orientation. J.A. 4313–14 ¶ 58. Per LG's expert, Bachmann teaches this algorithm. J.A. 4314 ¶ 58. LG's expert testified that Bachmann's algorithm also provides several benefits, including increased accuracy and precision and the ability to analyze sensor data in all rotational degrees of freedom. J.A. 4314 ¶ 58. To LG's expert, combining Withanawasam's sensors with Bachmann's algorithm was nothing more than a combination of known elements to achieve an expected improvement. J.A. 4314 ¶ 59. Implementing this combination, according to LG's expert, would merely be a routine engineering task. J.A. 4315 ¶ 60.

This is substantial evidence that supports the Board's motivation-to-combine conclusion. To demonstrate a motivation to combine, a petitioner can show that there is “a known technique to address a known problem using ‘prior art elements according to their established functions,’” *Intel*, 61 F.4th at 1380 (quoting *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 799–800 (Fed. Cir. 2021)), “unless its actual application is beyond” a skilled artisan's capability, *id.* (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007)). LG's expert testimony establishes precisely this.

CyWee also argues it had no opportunity to submit new evidence in reply to LG's opposition to the revised motion to amend and thus could not meaningfully dispute LG's evidence regarding Withanawasam and the combination of Withanawasam and Bachmann. The relevant procedures and the Board's orders in this case belie CyWee's assertion.

Notice, 84 Fed. Reg. at 9501 (“Both the opposition and the reply may be accompanied by new evidence that responds to issues raised in the preliminary guidance, or in the corresponding revised [motion to amend] or opposition”); J.A. 1388–89 (“Specifically, both Petitioner’s opposition to the revised [motion to amend] and Patent Owner’s reply to that opposition may be accompanied by new evidence that responds to issues raised in the preliminary guidance (if provided) or in the corresponding revised [motion to amend] or opposition.”); J.A. 1450 (same); J.A. 1484 (same); J.A. 1440 (“CyWee may, of course, respond to any such arguments or evidence with its own rebuttal arguments or evidence.”).

Because we affirm the Board’s obviousness conclusion, we need not address CyWee’s written description arguments.

III

CyWee finally argues that it was denied meaningful Director review in the time required by statute and that this denial mandates vacating the Board’s final written decision and dismissing the IPR petition. We have considered and rejected these arguments in *Arthrex, Inc. v. Smith & Nephew, Inc.*, 35 F.4th 1328 (Fed. Cir. 2022), *In re Palo Alto Networks, Inc.*, 44 F.4th 1369 (Fed. Cir. 2022), and *CyWee Group Ltd. v. Google LLC*, 59 F.4th 1263 (Fed. Cir. 2023). We reject them again here.

CONCLUSION

We have considered CyWee’s remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm.

AFFIRMED