

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

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**INTELLECTUAL PIXELS LIMITED,**  
*Appellant*

v.

**SONY INTERACTIVE ENTERTAINMENT LLC,**  
*Appellee*

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2024-2174

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Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2021-00237.

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Decided: July 10, 2026

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DOUGLAS R. WILSON, Armond Wilson LLP, Austin, TX, argued for appellant. Also represented by MICHELLE ARMOND, JOSEPH LI, Newport Beach, CA.

JAMES MURPHY DOWD, Wilmer Cutler Pickering Hale and Dorr LLP, Los Angeles, CA, argued for appellee. Also represented by THOMAS SAUNDERS, Washington, DC; SHARCHUN DENNIS WANG, Palo Alto, CA.

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Before DYK, STOLL, and STARK, *Circuit Judges*.

DYK, *Circuit Judge*.

Intellectual Pixels Limited (“IPL”) appeals a decision of the Patent Trial and Appeal Board (the “Board”) holding claims 1–12 of U.S. Patent No. 10,681,109 (the “’109 patent”) unpatentable as obvious. This decision followed a remand from our court of a Board decision holding the claims not unpatentable. Because the Board did not violate our prior mandate, and its decision was supported by substantial evidence, we affirm.

## BACKGROUND

### I

The ’109 patent discloses methods for generating digital images using an external visual server and systems implementing the disclosed method. Image generation is a resource-intensive process for computers and, at the priority date of the ’109 patent, many standard user-operated devices struggled to render complex images on their own. To address this, “[s]everal existing systems utilize[d] the client-server model,” whereby the user-operated client device outsourced aspects of the image processing to separate external servers. ’109 patent, col. 1 ll. 55–57. The image data transmitted from the external server to the client device was compressed, allowing for “a high level-of-detail, high quality image that require[d] relatively low transmission bandwidth.” *Id.* col. 2 ll. 15–19. Outsourcing some of the data processing and compressing the transmitted images “decrease[d] the computational load of the client and reduce[d] communication costs.” *Id.* col. 2 ll. 19–23.

The ’109 patent’s purported advance over this prior art is said to be using the external server to handle all of the visual processing, such that the client device merely receives user input, transmits that input information to the external server, receives a compressed image from the external server in response, and decompresses it so that it can be displayed to the user. *Id.* col. 3 ll. 41–57. In the

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claimed invention, the external server is fully responsible for generating the new image, taking that burden completely off of the client device. *See id.*

Sony Interactive Entertainment LLC (“Sony”) petitioned for *inter partes* review of claims 1–12<sup>1</sup> of the ’109 patent, arguing that the ’109 patent claims are unpatentable as obvious over several prior art references. Claims 1 and 8 are exemplary. Claim 1 recites:

A method of hosting an interactive software application comprising:

running at a server the interactive software application;

receiving at the server user input signals from a client device, wherein the user input signals are used to control updating of the state of the interactive software application;

generating at least one updated image at the server in response to updating the state of the interactive software application; and

compressing the at least one updated image and transmitting the compressed updated image to the client device, wherein the server transmits the updated image as a compressed frame that can be decompressed and displayed as an updated image at the client device.

’109 patent, claim 1 (emphases added). Claim 8 recites a system comprising a server that performs the server-side steps of the method recited in claim 1.

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<sup>1</sup> Sony originally petitioned for review of claims 1–18, but IPL filed a statutory disclaimer of claims 13–18, leaving only claims 1–12 at issue.

The primary relevant prior art reference raised in Sony’s petition is U.S. Patent No. 6,409,602 (“Wiltshire”). Wiltshire disclosed a computer gaming system whereby the game is hosted “exclusively on a server/host computer” but users play the game through separate “client/terminal computers.” Wiltshire, col. 2 ll. 35–44. In Wiltshire’s system, the client computers also receive input from the user and transmit it to the host computer, which uses it to select a new image that is transmitted back to the client computer to be displayed. *Id.* In one disclosed embodiment, represented in Figure 2, Wiltshire describes its server executing a “game program,” “generat[ing]” an image such as a “compressed video MPEG stream,” and transmitting that image to the client for display to the user. *Id.* fig. 2, col. 7 ll. 7–27. In its definition of “game,” Wiltshire includes “video[-]based games such as Doom, Pong, Packman [sic], [and] Myst.” *Id.* col. 1 ll. 26–44.

## II

In the Board’s first final written decision, it concluded that Sony had not shown that the challenged claims were unpatentable. The Board concluded that Wiltshire did not disclose “generating” an image at the server because, in its view, Wiltshire only disclosed the external server’s “select[ing]” an image from a predetermined set to display rather than rendering a new (“updated”) image as the claims require. J.A. 20. The Board did not reach the question of whether Wiltshire disclosed the “compressing the at least one updated image” limitation but did state that “Wiltshire’s disclosure [is] completely silent as to the content or origin of th[e] ‘compressed video MPEG stream.’” J.A. 30 (quoting J.A. 436–37) (first alteration in original).

On appeal, we vacated the Board’s decision and remanded, concluding that substantial evidence did not support the Board’s finding that Wiltshire did not disclose generating a new image. *Sony Interactive Ent. LLC v. Intell. Pixels Ltd.*, No. 2022-2118, 2023 WL 6773879, at \*4–5

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(Fed. Cir. Oct. 13, 2023). This was so because Wiltshire disclosed operating its system in connection with the video game Doom,<sup>2</sup> and the parties agreed Doom required generating a new image. *Id.* Our decision was limited to “[t]he Board’s determination that Wiltshire does not disclose the ‘generating’ limitation;” we declined to reach other issues and “remand[ed] for further proceedings consistent with th[at] opinion.” *Id.*

On remand, in accordance with our decision, the Board recognized that Wiltshire, by disclosing operating its system in conjunction with a game like Doom, disclosed the external server’s generating new updated images and satisfied the generating limitation of the challenged claims. The Board further found that these new updated images were transmitted to the client computers as compressed MPEG streams. Therefore, the Board concluded that the compressing limitation was also satisfied and issued a second final written decision holding the challenged claims unpatentable as obvious over Wiltshire in combination with other prior art references.<sup>3</sup>

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<sup>2</sup> In Doom, as the Board found, the player’s “perspective changes dynamically based on what the user is doing in real time,” so each displayed image must be “updated to reflect the current state of the player within the game world.” J.A. 26 (quoting J.A. 2321). Such games must generate novel updated images in response to user inputs in real time.

<sup>3</sup> The Board held claims 1 and 3–12 unpatentable over the combination of Wiltshire and U.S. Patent No. 6,404,817 (“Saha”), which detailed MPEG compression. The Board held claim 2 unpatentable over the combination of Wiltshire, Saha, and an article, “The Development and Standardization of Asymmetrical Digital Subscriber Line,” IEEE Communications Magazine (May

IPL appeals the Board's second final written decision. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

#### DISCUSSION

On appeal, IPL argues that (1) the Board acted contrary to our mandate in the first appeal; and (2) the Board's decision was, in any event, unsupported by substantial evidence. We disagree.

#### I

We review the scope of our own mandate de novo. *TecSec, Inc. v. Int'l Bus. Machs. Corp.*, 731 F.3d 1336, 1341 (Fed. Cir. 2013). In doing so, we interpret our mandate in accordance with “both the letter and the spirit of the mandate.” *Id.* at 1342 (quoting *Engel Indus. Inc. v. Lockformer Co.*, 166 F.3d 1379, 1383 (Fed. Cir. 1999)). As is true for any other tribunal, the Board on remand may not reconsider “any issue within the scope of the judgment [previously] appealed from.” *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1360 (Fed. Cir. 2008); *see also Jewelers Vigilance Comm., Inc. v. Ullenberg Corp.*, 853 F.2d 888, 892 & n.3 (Fed. Cir. 1988) (applying the mandate rule to the Patent and Trademark Office); *Atlanta Gas Light Co. v. Bennett Regulator Guards, Inc.*, 33 F.4th 1348, 1354–56 (Fed. Cir. 2022) (same); 18B Wright & Miller, *Federal Practice & Procedure* § 4478.3 (“An administrative agency is bound by the mandate of a reviewing court much as a lower court is bound by the mandate of a higher court.”); *Scott v. Mason Coal Co.*, 289 F.3d 263, 267–68 (4th Cir. 2002) (holding the mandate rule applies equally to administrative agencies).

The mandate rule provides that issues actually decided on appeal are foreclosed from further consideration. *Amado*, 517 F.3d at 1360. This rule encapsulates the long-

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1999) (“Chen”), which disclosed asymmetric bandwidth transmissions.

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standing principle that a tribunal “has no power or authority to deviate from the mandate issued [to it] by an appellate court.” *Briggs v. Pa. Ry. Co.*, 334 U.S. 304, 306 (1948). When we review a judgment, “all issues within the scope of the appealed judgment are deemed incorporated within the mandate and thus are precluded from further adjudication.” *Engel*, 166 F.3d at 1383 (collecting cases). However, the scope of the appealed judgment, and thus our mandate, “is limited to issues ‘actually decided, either explicitly or by necessary implication’ in the previous litigation.” *Banks v. United States*, 741 F.3d 1268, 1276 (Fed. Cir. 2014) (quoting *Toro Co. v. White Consol. Indus., Inc.*, 383 F.3d 1326, 1335 (Fed. Cir. 2004)).

Issues “undecided on the merits by the trial court because they were moot, and thus on appeal unripe, [and] neither presented to us nor discussed in our opinion, nor necessary to our disposition of the appeal,” are open on remand. *Retractable Techs., Inc. v. Becton Dickinson & Co.*, 757 F.3d 1366, 1372 (Fed. Cir. 2014) (quoting *Laitram Corp. v. NEC Corp.*, 115 F.3d 947, 952 (Fed. Cir. 1997)); see also *TecSec*, 731 F.3d at 1343 (following affirmance, district court was free to revisit claim construction on remand where the claim construction was not the basis of the original judgment and not addressed on appeal); *Omega Patents, LLC v. CalAmp Corp.*, 13 F.4th 1361, 1374 (Fed. Cir. 2021) (district court was not bound by earlier evidentiary finding related to damages where our mandate left open the issue of damages on remand); *Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 137 F.3d 1475, 1478 (Fed. Cir. 1998) (mandate regarding judgment on literal infringement did not preclude district court from revisiting doctrine-of-equivalents infringement which had not previously been decided by the district court or on appeal).<sup>4</sup>

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<sup>4</sup> “[T]here are circumstances in which a federal appellate court is justified in resolving an issue not passed on

IPL argues that the Board’s second final written decision exceeded our mandate because in its first final written decision the Board made two findings not set aside in our opinion but which the Board did not adhere to on remand. First, in the first final written decision, the Board concluded that “nothing in Wiltshire . . . suggest[s] that a person of ordinary skill in the art would have understood that Wiltshire’s system could possibly have supported [Doom] in the manner proposed by petitioner,” Appellant’s Reply Br. 11 (quoting J.A. 27), and second, the Board found that “Wiltshire’s disclosure [is] completely silent as to the content or origin of that ‘compressed video MPEG stream,’” Appellant’s Br. 28 (alteration in original) (quoting J.A. 30).

The first finding (that Wiltshire did not disclose the use of games like Doom) was vacated as unsupported by substantial evidence in our prior decision. *Sony*, 2023 WL 6773879, at \*5. As we stated in our prior opinion, “Wiltshire explicitly discloses that [its] Figure 2 is to be applied to games like Doom,” which required generating a new image. *Id.* at \*4. The Board then on remand determined that Wiltshire disclosed “applying its system to video games like Doom, which require ‘generating’ new images.” J.A. 74 (quoting *Sony*, 2023 WL 6773879, at \*4). This remand determination was compelled by our mandate, not foreclosed by it.

As to the second Board finding, any fact-finding the Board conducted regarding the compressing limitation during its first final written decision was not within the scope of the Board’s first judgment, which reached only the generating limitation, was not appealable or decided by us,

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below, as where the proper resolution is beyond any doubt or where injustice might otherwise result.” *Singleton v. Wulff*, 428 U.S. 106, 121 (1976) (internal citations and quotation marks omitted). A lower tribunal would be bound by any such holdings under the mandate rule.

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and thus was not within the scope of our mandate. In its first final written decision, the Board stated, “[w]e focus our analysis . . . on the ‘generating’ limitation,” J.A. 16, and then that “Petitioner has not met its burden to show by a preponderance of the evidence that a person of ordinary skill in the art would have understood the combination of Wiltshire and Saha as teaching [the generating limitation, therefore] Petitioner has not shown that the subject matter of claims 1 and 8 of the ’109 patent would have been obvious,” J.A. 32. The Board’s first final written decision only reached whether the proposed combinations disclosed “generating at least one updated image.” ’109 patent, claims 1, 8.

IPL argues that the Board addressed the compressing limitation when it stated that “Wiltshire’s disclosure [is] completely silent as to the content or origin of that ‘compressed video MPEG stream.’” J.A. 30 (alteration in original) (quoting J.A. 436–37). But the Board did not reach the compressing limitation issue or consider it as an alternative or independent basis for supporting the original judgment; instead, it simply commented that the “at least one updated image” required in both the generating limitation and the compressing limitation did not exist in Wiltshire. We also did not address the compressing limitation on appeal. *See Sony*, 2023 WL 6773879, at \*2 (“The sole issue on appeal is whether the Board properly determined that Wiltshire does not teach the ‘generating’ limitation.”).

Since the Board’s decision as to obviousness was based on the generating limitation, any findings of fact as to the compressing limitation were not subject to appeal, were not decided by us, and were not part of our mandate. It is well established that Article III courts review judgments, not opinions. *E.g.*, *Tesco Corp. v. Nat’l Oilwell Varco, L.P.*, 804 F.3d 1367, 1379 (Fed. Cir. 2015); *Plastic Omnium Adv. Innov. & Rsch. v. Donghee Am., Inc.*, 943 F.3d 929, 938 (Fed. Cir. 2019). The parties cannot appeal “issues when it is not clear that the resolution of the question will resolve

a concrete controversy between interested parties.” *Jang v. Bos. Sci. Corp.*, 532 F.3d 1330, 1336 (Fed. Cir. 2008). The parties can only appeal issues that formed the basis for a judgment. Issues that do not form the basis of the judgment are outside the scope of an appeal. *Id.* at 1336–38 (declining to address appealed claim construction opinion where it was unclear whether claim construction related to judgment of noninfringement); *Personalized User Model, LLP v. Google Inc.*, 797 F.3d 1341, 1350 (Fed. Cir. 2015) (same).

This is similar to the situation considered in *Laitram Corp. v. NEC Corp.*, 115 F.3d 947 (Fed. Cir. 1997). In that case, following an adverse jury verdict, the defendant filed three separate motions for judgment as a matter of law (“JMOL”). *Laitram*, 115 F.3d at 949. The district court granted one of those motions and did not reach the other two. *Id.* In the first appeal, we reversed with instructions to “reinstate the jury verdict.” *Id.* at 952–53. Nevertheless, we held that, on remand, the district court could properly consider the other two JMOL motions because they were outside the scope of the original judgment. *Id.* Similarly, in *Atlanta Gas Light Co. v. Bennett Regulator Guards, Inc.*, we considered whether the Board could reconsider its application of a time-bar issue on remand when the issue was not addressed on appeal and concluded that our mandate did not preclude the Board from doing so. 33 F.4th at 1355. *Laitram* and *Atlanta Gas* were not outliers; the rule that they apply is supported by numerous relevant cases.<sup>5</sup> The Board did not err by revisiting the compressing limitation issue on remand.

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<sup>5</sup> See, e.g., *Clark v. United States*, 656 F.3d 1317, 1321 (Fed. Cir. 2011) (trial court did not exceed mandate when on remand it granted summary judgment on alternative ground that it had not previously reached and that we did not decide on appeal); *Kashner Davidson Secs. Corp.*

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Finally, we note that the Board’s finding in the first decision that “Wiltshire’s disclosure [is] completely silent as to the content or origin of that ‘compressed video MPEG stream,’” J.A. 30 (alteration in original) (quoting J.A. 436–37), was also implicitly rejected in the first appeal in our discussion of the generating limitation. Both the generating limitation and the compressing limitation disclose an “at least one updated image.” Therefore, our decision determined that Wiltshire was not “silent as to the content or origin of that ‘compressed video MPEG stream.’” J.A. 30. In the context of Doom, the content was a newly generated “updated image.” *Sony*, 2023 WL 6773879, at \*3. On remand, the Board reached “[t]he logical conclusion from the Federal Circuit’s reasoning . . . that [its] finding that Wiltshire is silent as to the content of that compressed MPEG

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*v. Mscisz*, 601 F.3d 19, 24 (1st Cir. 2010) (district court not constrained from reaching issue left unaddressed in first appeal); *United States v. Arrington*, 757 F.2d 1484, 1485 (4th Cir. 1985) (after reversal, district court could properly consider on remand an alternative ground for relief that was not previously reached); *Fuller v. United States*, 398 F.3d 644, 650 (7th Cir. 2005) (issue not previously raised was not barred by law of the case doctrine on remand because it had not been previously addressed or decided); *Hulsey v. Astrue*, 622 F.3d 917, 924 (8th Cir. 2010) (district court permitted to address on remand alternative theory that was not the basis of the first appealed decision or the decision on appeal); *Pittsburg Cnty. Rural Water Dist. No. 7 v. City of McAlester*, 358 F.3d 694, 711 (10th Cir. 2004) (after reversal, district court could properly address alternative grounds on remand that were not previously addressed); *Transam. Leasing, Inc. v. Inst. of Lond. Underwriters*, 430 F.3d 1326, 1332 (11th Cir. 2005) (district court properly reached alternative issue on remand where the issue “was not addressed in the [first appealed] district court order”).

stream has now been rejected.” Appellant’s Br. 30 (emphasis omitted) (quoting J.A. 93).

IPL nonetheless argues that our decision in *Bitmanagement Software GmbH v. United States*, 124 F.4th 1368 (Fed. Cir. 2025) (“*Bitmanagement IV*”) is to the contrary. That case suggested that it would have been inappropriate for the Court of Federal Claims (the “Claims Court”) to revisit certain prior findings of fact after appeal. *Id.* at 1377. We stated, “many of the findings on which the [Claims Court] based its damages award are not (and cannot be) challenged: they were findings originally made in connection with the first trial and were before us—but not disturbed by us—in [the first appeal]. Hence, as the trial court recognized, these findings cannot be challenged at this stage.” *Id.*

That decision is not contrary to our decision in this case or the numerous cases that support our decision. In the first appeal in *Bitmanagement*, we vacated a Claims Court judgment of copyright noninfringement in favor of the government. *Bitmanagement Software GmbH v. United States*, 989 F.3d 938, 950–51 (Fed. Cir. 2021) (“*Bitmanagement II*”). We concluded that while the government had an implied-in-fact license to use the copyrighted works, the government exceeded the scope of the license. *Id.* In the second appeal, we addressed the issue of damages, concluding that the relevant findings on the implied license issue supported the damages decision. *Bitmanagement IV*, 124 F.4th at 1377. Those findings were within the scope of the first appealed judgment because those facts were the basis of the Claims Court’s conclusion that the United States had an implied-in-fact license, an issue within the scope of the first appeal. Compare *Bitmanagement Software GmbH v. United States*, 144 Fed. Cl. 646, 648–654 (2019) (“*Bitmanagement I*”) with *Bitmanagement Software GmbH v. United States*, No. 16-840C, 2022 WL 17077251, at \*2–3 (Cl. Ct. Nov. 1, 2022) (“*Bitmanagement III*”).

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Here, neither the Board's first final written decision nor our decision on appeal reached whether the compressing limitation was disclosed in the prior art. Any Board findings as to this issue were not within the scope of the appeal.

## II

IPL alternatively argues that the Board's second final written decision is not supported by substantial evidence. Specifically, IPL argues that Wiltshire does not teach compression of newly generated images into an MPEG stream. This argument is unpersuasive. Sony argued in its petition that the compressing limitation was disclosed through a combination of Wiltshire and Saha. While Wiltshire generally disclosed transmitting a compressed image to the client device based on the described compressed MPEG stream, Saha provided information on predominant MPEG standards that met the compressing claim limitation that "the server transmits the updated image as a compressed frame that can be decompressed and displayed." J.A. 194–95 (internal quotation marks omitted). The Board agreed, crediting both the text of Wiltshire and Saha as well as expert testimony presented that a skilled artisan would have been familiar with real-time image compression via MPEG compression and would have combined Saha's standard for compressing and decompressing an MPEG stream with Wiltshire's system. This is substantial evidence supporting the Board's decision.

### **AFFIRMED**

#### COSTS

Costs to Sony.