

NOTE: This disposition is nonprecedential.

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

UNILOC 2017 LLC.,
Appellant

v.

NETFLIX, INC.,
Appellee

2021-2085

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2020-00044.

Decided: December 15, 2022

NATHAN K. CUMMINGS, Etheridge Law Group, Southlake, TX, argued for appellant. Also represented by JAMES ETHERIDGE, RYAN S. LOVELESS.

PATRICK JOHN MCKEEVER, Perkins Coie LLP, San Diego, CA, argued for appellee. Also represented by MATTHEW COOK BERNSTEIN; DAN L. BAGATELL, Hanover, NH; TARA LAUREN KURTIS, Chicago, IL.

Before DYK, TARANTO, and HUGHES, *Circuit Judges*.

HUGHES, *Circuit Judge*.

Uniloc 2017 LLC appeals a decision by the Patent Trial and Appeal Board that claims 1, 3, 5, and 6 of U.S. Patent No. 6,584,229 are unpatentable. Because we reject Uniloc’s arguments that the Board improperly construed two claim limitations, we affirm.

I

A

U.S. Patent No. 6,584,229 relates to a method for encoding videos. A video is a sequence of moving images, or “frames.” ’229 patent at 1:27–31; *see also Netflix, Inc. v. Uniloc 2017 LLC*, IPR No. 2020–00044, Ex. 1002, Declaration of Eli Saber, Ph.D. in Support of Petition (Saber Decl.) ¶ 30. Frames are commonly defined by unit of “macroblock.” ’229 patent at 1:27–31; Saber Decl. ¶ 32. A macroblock is a two-dimensional square containing a set number of brightness, color hue, and color saturation values. Saber Decl. ¶ 32. A typical macroblock is 16 brightness values wide by 16 brightness values long, with a corresponding number of color hue and saturation values dispersed throughout the square. *Id.* A “pixel” is the unit used to describe each brightness value. To put it simply: a macroblock is a 16x16 block of pixels, and a frame is a grid of macroblocks. *Id.* at ¶¶ 31–33.

Encoding a video requires translating the pictures in each frame into a compressed code that can be efficiently stored or transmitted. ’229 patent at 1:17–37. Before the priority date of the ’229 patent, conventional techniques were commonly used to separate each frame into a foreground object region and a background region. *Id.* at 1:21–25. It was also well-known that working at the macroblock-level is more efficient than individually coding each of the 256 pixels that make up the macroblock. *Id.* at 1:51–63.

The ’229 patent purports to claim a more efficient encoding method by only coding at the pixel-level when

necessary and, where possible, reusing code for macroblocks in the background area. *Id.* at 1:66–2:8. The specification asserts that dividing a video by pixel using “the conventional region division technique” is “very complicated,” and it is hard to use conventional processes “in real time.” *Id.* at 1:51–54. The patent adds that coding and transmitting by pixel is inefficient. *Id.* at 1:54–63. It purports to solve these problems by dividing the frame into two macroblock-based regions. *Id.* at 1:66–2:21. One region is a stationary background region, which contains the portion of the image that remains the same from one frame in the sequence to the next. *Id.* The other is the moving object region, which contains the portion of the image that changes from the previous frame. *Id.* New pixel-level coding is only necessary for the moving object region, and so the code for the background region can be reused at the macroblock-level to avoid redundancy. *Id.* Claim 1 is representative:

1. A method, for use in an [sic] macroblock-based object oriented coding of a [sic] image signal, wherein the image signal has a stationary background region and an object region and contains a current frame and a previous frame, each frame including a plurality of macroblocks, comprising the steps of:
 - a) dividing the stationary background region and the object region from an inputted video in a macroblock-by-macroblock basis by using a difference between the previous frame and the current frame;
 - b) coding shape information of the object region by using a known coding technique to generate coded shape information;
 - c) coding pixel information of each macroblock contained in the object region by using a selected known coding technique to generate coded object pixel information;

d) generating coded pixel information of a previous frame macroblock corresponding to each current frame macroblock contained in the stationary background region as coded stationary pixel information; and

e) storing or transmitting coded data coded shape information, coded object pixel information and coded stationary pixel information as coded image signal, and

wherein the step d) includes the step of reusing corresponding coded pixel information macroblock contained in the previous frame without coding the pixel information of each macroblock contained in the current frame when a difference between a pixel value of the macroblock of the current frame and that of the macroblock of the previous frame in the same position is identical to or smaller than a predetermined threshold value.

'229 patent at 3:42–4:21.

B

Appellee, Netflix, Inc., petitioned for inter partes review of independent claim 1 and dependent claims 3, 5, and 6 of the '229 patent under two obviousness grounds. The primary art reference in the first ground discloses a method for segmenting a frame into macroblock-based object and background regions. Raj Talluri, et al., *A Robust, Scalable, Object-Based Video Compression Technique for Very Low Bit-Rate Coding*, 7 IEEE TRANSACTIONS ON CIRCUITS AND SYS. FOR VIDEO TECH. 1 (Feb. 1997) (Talluri). Talluri discloses two parts of the segmentation step: (1) comparing the current frame with the previous frame to identify the moving objects, and (2) bounding each moving object region and background region with rectangles and tiling the rectangles with macroblocks. Talluri at 224. The resulting regions are macroblock-based after step two, but

Talluri does not require comparing at the macroblock-level during the first step.

The Board found all challenged claims unpatentable under the first ground and did not reach the second ground. J.A. at 37–38. Uniloc appeals, arguing the Board erred in its claim construction of the “dividing” limitation and the “selected known coding technique” limitation. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II

Claim construction is a question of law that depends on underlying findings of fact. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 325–28 (2015). We review the Board’s constructions de novo and its factual findings for substantial evidence. *Immunex Corp. v. Sanofi-Aventis US LLC*, 977 F.3d 1212, 1217–18 (Fed. Cir. 2020).

III

A

We begin with the “dividing” limitation of claim 1:

dividing the stationary background region and the object region from an inputted video *in a macroblock-by-macroblock basis* by using a difference between the previous frame and the current frame

...

’229 patent at 3:48–51 (emphasis added). The dispute is whether “macroblock-by-macroblock basis” requires *the act* of dividing to be done macroblock-by-macroblock (*i.e.*, one macroblock at a time); or whether it simply requires that the dividing *results* in separate macroblock-based regions. The Board held the latter: the limitation requires only (1) using a difference between the previous frame and the current frame to (2) result in macroblock-based object and background regions. J.A. 10–11. We agree.

When construing a claim limitation, we rely first on intrinsic evidence and then on extrinsic evidence if necessary. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc). When the technology is complicated and the intrinsic record is unclear, expert testimony and other extrinsic evidence may be decisive. *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1240 n.5 (Fed. Cir. 2010) (noting that expert testimony is “sometimes essential,” especially “in cases involving complex technology.”). Such is the case here.

The relevant intrinsic evidence before us is: (1) the claim language itself, (2) portions of the specification that describe the dividing step, and (3) portions of the specification that explain the purpose of the claimed invention and how it purportedly solves problems in the prior art.¹ After considering all the evidence de novo, we conclude that the intrinsic record is ambiguous as to the meaning of “macroblock-by-macroblock basis.”

First, the claim language itself is unclear because it could be read to support either construction equally. On one hand, we can imagine how a reader might interpret

¹ Netflix asks us to ignore Uniloc’s arguments as related to the third category of intrinsic evidence, claiming that such arguments were forfeited. Oral Argument at 12:06. But our forfeiture doctrine does not “preclude a party from proffering additional or new supporting arguments, based on evidence of record, for its claim construction.” *Interactive Gift Exp., Inv. v. Compuserve Inc.*, 256 F.3d 1323, 1347 (Fed. Cir. 2001). Here, Uniloc merely cited additional support in the specification to support the same argument it had always made—“macroblock-by-macroblock basis,” includes *how* the dividing occurs, not just *what* results from that division. We do not consider Uniloc’s arguments related to this evidence to be forfeited, and thus we consider all cited portions of the record.

“macroblock-by-macroblock” to imply comparisons using “*one* macroblock-by-*one* macroblock.” But on the other hand, the structure of the claim can be read to set forth only two requirements: a “what” (dividing the stationary background region and the object region from an inputted video in a macroblock-by-macroblock basis) and a “how” (by using a difference between the previous frame and the current frame). Given these competing reasonable interpretations, it is not clear based on the claim language what is meant by “macroblock-by-macroblock basis.”²

Uniloc disagrees, arguing that the claim language unambiguously requires the dividing step to occur one macroblock at a time. But this asks us to read language into the claim that is simply not there. The claim language is *not* comparing using “one macroblock at a time,” nor is it comparing “*one* macroblock-by-*one* macroblock.” If anything, the fact that the language does not require comparing at the macroblock-level—but instead explicitly requires comparing between *frames*—suggests that a person of ordinary skill in the art would not read Uniloc’s requirement into the claim language. ’229 patent at 3:50–51 (requiring that the division occurs by “using a difference between the previous *frame* and the current *frame* . . .”) (emphasis added).

Uniloc also argues that the preamble clarifies the meaning of “macroblock-by-macroblock basis.” The preamble states: “wherein the image signal has a stationary background region and an object region and contains a current frame and a previous frame, *each frame including a plurality of macroblocks*.” ’229 at 3:42–47 (emphasis added).

² Moreover, while we treat “*in* a macroblock-by-macroblock basis” as a typographical error, preferring the phrase “*on* a macroblock-by-macroblock basis,” this claim drafting mistake makes already ambiguous claim language even less clear.

While the preamble may give context to the meaning of a limitation, it does not make the phrase “macroblock-by-macroblock basis” any clearer. As the Board acknowledged, the “previous frame” and “current frame” in the preamble are the same terms used in the dividing limitation. J.A. 10. The preamble describes both the current and previous frames as including “a plurality of macroblocks.” Uniloc argues this means the first frame must already be defined at the macroblock level. J.A. 11. But every frame is technically defined at the macroblock level. The macroblocks exist as a unit of measuring the frame, no matter if we have drawn invisible dividing lines around them or not. The Board’s construction is consistent with the preamble language. That the previous frame can be expressed in units of macroblocks does not require the dividing to be done one macroblock at a time. Thus, neither the claim language nor the preamble dictates Uniloc’s narrow interpretation of the dividing step.

Likewise, the specification also does not clarify what is meant by “macroblock-by-macroblock basis.” It is worth noting that nowhere in the specification is this term defined. In fact, the phrase “macroblock-by-macroblock basis” is only ever used once in the entire patent, and that is in claim 1.

Moreover, the portions of the specification that describe the dividing step more generally are still unclear. The paragraph of the specification cited by Board as describing the dividing step begins:

The video signal is divided into a *macroblock-based* stationary back ground [sic] region and a *macroblock-based* moving object region by using the difference between a previous frame of the input video signal and a current frame of the input video at step 10.

JA 10–11 (citing ’229 patent at 2:45–49). This language suggests that the difference between a previous frame and

a current frame need not be determined one macroblock at a time, so long as the video signal is ultimately “divided into a macroblock-based stationary back ground [sic] and a macroblock-based moving object region . . .,” as the specification describes.

Uniloc points out that the rest of that paragraph provides an example by which the dividing step occurs one macroblock at a time. Opening Br. at 14 (citing ’229 patent at 2:53–60). But we do not limit the claim language to examples used in the specification. *E.g.*, *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015) (“This court has repeatedly ‘cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.’”) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 229 F.3d 1313, 1328 (Fed. Cir. 2002)). The patent describes this example as one of multiple “well-known techniques,” suggesting there are other methods that would fall within the dividing limitation. This paragraph does not dictate dividing one macroblock at a time.

Nor do the portions of the specification about the purpose of the invention and avoiding problems in the prior art clarify the meaning of “macroblock-by-macroblock basis.” The specification alludes to at least two purposes of dividing the object region and background region into macroblocks: (1) to make coding more efficient, Responsive Br. at 16–17 (citing ’229 patent at 1:54–62; 2:4–6; 3:10–19); and (2) to avoid dividing at the pixel-level, Reply Br. at 4–5, 16–17 (citing ’229 patent at 1:38–41; 2:2–6). The specification then goes on to describe how those purposes are achieved, starting with the first step: “wherein the inputted video is to be divided into an [sic] background region and a foreground object region *by unit of macroblock*,” ’229 patent at 2:9–12 (emphasis added). These statements, none of which use the term “macroblock-by-macroblock basis,” do not dispositively clarify the meaning of this language. They can be read to support either interpretation of the claim language.

Thus, after considering the relevant portions of the intrinsic record as a whole, we are left with no clear answer as to whether a person of ordinary skill in the art would understand the “dividing” limitation to require dividing one macroblock at a time. This leaves us to consider the extrinsic record. *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008) (affirming the trial court’s reliance on extrinsic evidence where the intrinsic record was not sufficiently clear to determine the plain meaning of a claim limitation). The only extrinsic evidence provided by Uniloc is a dictionary definition of “basis,” which defines the word as “the system or principles according to which an activity or process is carried on.” Reply Br. at 6. We do not find this lone dictionary definition helpful in clarifying Uniloc’s interpretation.

More helpful is the expert testimony of Dr. Eli Saber, Netflix’s expert. “Where the Board looks beyond the intrinsic evidence and consults extrinsic evidence, we review the Board’s subsidiary factual findings concerning such extrinsic evidence for substantial evidence.” *Arista Networks, Inc. v. Cisco Sys., Inc.*, 908 F.3d 792, 796 (Fed. Cir. 2018). The substantial evidence standard is satisfied “if a reasonable mind might accept the evidence as adequate to support the finding.” *Almirall, LLC v. Amneal Pharms. LLC*, 28 F.4th 265, 271–72 (Fed. Cir. 2022).

Here, we hold that substantial evidence supports the Board’s findings concerning Dr. Saber’s testimony. The Board credited Dr. Saber’s testimony on claim construction, citing to his statement about how a person of ordinary skill (himself) would interpret the term “macroblock-by-macroblock basis.” J.A. 8 (citing J.A. 1355–56). A reasonable mind could have accepted Dr. Saber’s testimony as adequate to support the finding that a person of skill in the art would *not* have read “macroblock-by-macroblock basis” to require dividing one macroblock at a time. In particular, Dr. Saber filed two declarations during the proceeding, one with the petition and one with the reply. Dr. Saber’s first

declaration set forth ample evidence that he qualifies as a person of ordinary skill in the art and that he reviewed the claim language and specification through that lens. Saber Decl. ¶¶ 5–22. His declarations also explained the technology and how a person of ordinary skill in the art would understand that technology, ultimately leading to his claim language analysis cited by the Board.

Uniloc, in contrast, offered no expert evidence, whether to explain technological facts or usage in the field that might help clarify the meaning or implications of the specification or for any other purpose. In its reply brief on appeal, Uniloc suggests it would defeat the purpose of the invention to compare the brightness between frames pixel-by-pixel due to the bandwidth required to do so. But there is no evidence in the record that a pixel-by-pixel comparison of brightness would in fact use excessive bandwidth and frustrate the goal of the invention. Also important is that Netflix’s expert’s, Dr. Saber’s, opinions are consistent with the intrinsic record. As discussed above, the meaning of “macroblock-by-macroblock basis” is left ambiguous after a careful review of the intrinsic evidence. This is *not* a case where the Board has credited extrinsic evidence that runs afoul of the claim language or the specification. To the contrary, the Board cited the specification as additional support for Dr. Saber’s testimony and the Board’s finding that “macroblock-by-macroblock basis” did not require dividing one macroblock at a time. J.A. 8–9. Thus, the Board properly relied on Dr. Saber’s testimony to confirm that all that is required to meet this limitation is (1) using a difference between the previous frame and the current frame to (2) result in macroblock-based object and background regions.

We have considered the parties’ remaining arguments and find them unpersuasive. We affirm as to the “dividing” limitation.

B

Next, we address the “selected known coding technique” limitation: “coding pixel information of each macroblock contained in the object region by using a *selected known coding technique* to generate coded object pixel information” ’229 patent at 4:1–3 (emphasis added). Uniloc argues that the use of the word “selected” requires a construction that includes a separate step of selecting which “known coding technique” to use. Opening Br. at 17–23. The Board rejected this argument, holding that the claimed method does not require an additional selecting step.

We agree with the Board. Similar to our precedent in *Summit 6, LLC v. Samsung Electronics Company*, “selected” is “not a step in the claimed method,” but is a “phrase that characterizes the claimed” use of a known coding technique to code the pixel information of the object region. 802 F.3d 1283, 1290–92 (Fed. Cir. 2015). Thus, the Board did not err by not requiring a separate step of “selecting.”

Uniloc contends that we must give meaning to all the words in the claim and that using a different term generally presumes a different meaning. But the fact that the preceding limitation uses the term “known coding technique” without using the word “selected” does not import a new “selecting” requirement into this limitation. It is not that the word “selected” carries no weight. The known coding technique must have been selected at some point—just not as part of the encoding method.

Uniloc also points to step 20 of the specification as support for the “selecting” requirement. Opening Br. at 19. But step 20 relates to determining a coding technique for the *shape coding* of the object region (limitation 1(b)), *not* for *pixel coding* (limitation 1(c)). The parts of the figure that appear to relate to limitation 1(c), steps 40 and 50, say nothing about selecting a particular coding technique.

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Steps 40 and 50 only show that one first determines whether to apply the known coding technique, and then uses the known coding technique if applicable. There is no reference in the specification to suggest “selected known coding technique” requires some unspecified selecting step. Nor has Appellant cited any prosecution history or extrinsic evidence to support this reading of the claim. Appellant seeks to turn the general presumption that different phrases have different meanings into a bright line rule that saves the patent from unpatentability. We have rejected such an inflexible rule before, and we continue to do so here. *SimpleAir, Inc. v. Sony Ericsson Mobile Commc’ns AB*, 820 F.3d 419, 429 (Fed. Cir. 2016).

We have considered the parties’ remaining arguments and find them unpersuasive. We affirm as to the “selected known coding technique” limitation.

AFFIRMED