

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

RED.COM, LLC,
Patent Owner.

IPR2019-01064
Patent 9,230,299 B2

Before BRIAN J. McNAMARA, J. JOHN LEE, and
JASON M. REPKO, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–29 (“the challenged claims”) of U.S. Patent No. 9,230,299 B2 (Ex. 1001, “the ’299 Patent”). RED.COM, LLC (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Petitioner filed an authorized Reply to the Preliminary Response (Paper 15), and Patent Owner filed an authorized Sur-Reply (Paper 16).

We have authority to institute an *inter partes* review only if the information presented in the Petition shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the Petition and the Preliminary Response, we conclude that Petitioner has not shown a reasonable likelihood of prevailing in its challenges to the ’299 Patent. Accordingly, the Petition is denied.

A. *Related Cases*

The parties indicate that no other cases or proceedings are related or may be affected by the present case. Pet. 1; Paper 4, 1. We note, however, that Petitioner has also filed a second petition seeking *inter partes* review of U.S. Patent No. 9,245,314 B2, which is related to the ’299 Patent.

B. *The ’299 Patent*

The ’299 Patent relates to “digital cameras, such as those for capturing still or moving pictures, and more particularly, to digital cameras that compress image data.” Ex. 1001, 1:19–21. According to the specification, some existing digital video cameras “include high resolution image sensors, and thus output high resolution video,” but “the image processing and compression techniques used on board such cameras are too lossy and thus

eliminate too much raw image data to be acceptable” in certain applications, such as for motion pictures and television. *Id.* at 1:33–38. The specification describes the use of a “compression module” that is able to compress image data from an image processing module “to result in a visually lossless output.” *Id.* at 9:25–27. A number of compression techniques are disclosed, including “Huffman” compression. *Id.* at 9:27–32. The ’299 Patent indicates that its invention is capable of enabling a digital camera that compresses data but still produces video quality sufficient for the major motion picture market. *Id.* at 1:38–45.

C. Challenged Claims

Petitioner challenges claims 1–29. Claims 1 and 15 are the independent claims. Claim 1 is illustrative and is reproduced below:

1. A video camera comprising:
 - a portable housing having an opening through which light emanating from outside the portable housing enters the portable housing;
 - a memory device supported by the portable housing;
 - an image sensor comprising first, second, and third pluralities of light sensitive devices arranged with respect to one another in a plane defined by the image sensor such that the first, second, and third pluralities of light sensitive devices are intermingled, defining an intermingled pattern, the first, second, and third pluralities of light sensitive devices being configured to detect first, second, and third colors, respectively, the first, second, and third colors being different from each other, the image sensor being configured to convert light entering the portable housing through the opening into raw mosaiced image data comprising one data value for each of the light sensitive devices included in the first, second, and third pluralities of light sensitive devices, the image sensor being configured to output the raw mosaiced image data at a resolution of at least 2 k and at a frame rate of at least about 23 frames per second; and

electronics having an image processing module and a compression module implemented therein,

the image processing module connected between the image sensor and the memory device, the image processing module configured to process the raw mosaiced image data from the image sensor and output processed image data based on the raw mosaiced image data from the image sensor, the processed image data including less than three data values for each of the light sensitive devices included in the first, second, and third pluralities of light sensitive devices, and

the compression module connected between the image sensor and the memory device, the compression module configured to compress the processed image data with a Huffman compression technique into compressed processed image data such that the compressed processed image data can be decompressed and demosaiced into a substantially visually lossless image of at least 2 k resolution,

wherein the memory device receives the compressed processed image data at a rate of at least about 23 frames per second.

Ex. 1001, 15:42–16:18.

D. Asserted Grounds of Unpatentability and Asserted Prior Art

Petitioner challenges the patentability of claims 1–29 of the ’299

Patent on the following grounds (Pet. 10–11):

Claims Challenged	35 U.S.C. §	References
1–9, 11, 12, 14–24, 26, 27, 29	103(a)	Presler, ¹ Mølgaard, ² and Chui ³

¹ U.S. Patent No. 9,565,419 B2, provisional application filed Apr. 13, 2007 (Ex. 1005, “Presler”). At this stage, the parties do not dispute whether April 13, 2007, is the applicable date for Presler.

² U.S. Patent No. 7,656,561 B2, filed June 14, 2004 (Ex. 1006, “Mølgaard”).

³ U.S. Patent No. 5,600,373, issued Feb. 4, 1997 (Ex. 1015, “Chui”).

Claims Challenged	35 U.S.C. §	References
10, 25	103(a)	Presler, Mølgaard, Chui, and Sodini ⁴
13, 28	103(a)	Presler, Mølgaard, Chui, and Frost-Ruebling ⁵

In addition, Petitioner relies on the Declaration of Cliff Reader, Ph.D. (Ex. 1003) in support of the asserted grounds of unpatentability.

ANALYSIS

A. *The Level of Ordinary Skill in the Art*

Petitioner contends a person of ordinary skill in the art at the relevant time would have had (1) “a Bachelor’s degree in Computer Science, Electrical Engineering, or equivalent training”; (2) “approximately three years of experience in designing and/or manufacturing video capture, processing, and display systems”; and (3) “experience in data compression.” Pet. 6. At this stage, Patent Owner does not dispute Petitioner’s contention or propose its own formulation of the relevant level of ordinary skill. For purposes of this Decision, we adopt Petitioner’s description, which we determine to be consistent with the level of skill reflected in the asserted prior art references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

⁴ U.S. Patent No. 7,349,574 B1, filed Oct. 14, 2003 (Ex. 1013, “Sodini”).

⁵ U.S. Patent No. 8,170,402 B2, filed June 15, 2006 (Ex. 1014, “Frost-Ruebling”).

B. Claim Construction

In this case, we apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018). Under the *Phillips* standard, claim terms must be given “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips*, 415 F.3d at 1313. The specification is the “single best guide” to the proper meaning of claim terms, including when it “reveal[s] a special definition given to a claim term.” *Id.* at 1315–16.

Petitioner proposes constructions for several claim terms (Pet. 7–10), but only the term “substantially visually lossless” requires express construction for purposes of this Decision. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only claim terms in controversy require express construction, and only to the extent necessary to resolve the controversy). According to Petitioner, the specification of the ’299 Patent provides a definition of the term “visually lossless.” Pet. 9. Specifically, the specification states,

As used herein, the term “visually lossless” is intended to include output that, when compared side by side with original (never compressed) image data on the same display device, one of ordinary skill in the art would not be able to determine which image is the original with a reasonable degree of accuracy, based only on a visual inspection of the images.

Ex. 1001, 9:55–60. Based on this definition, Petitioner asserts that “substantially visually lossless” be construed “to include ‘sets of data that are substantially visually similar from the point of view of one of ordinary

skill in the art.’” Pet. 9. At this stage, Patent Owner does not dispute Petitioner's proposed construction. Prelim. Resp. 28.

We agree with Petitioner that the specification’s definition is critical to the proper construction of this term. Petitioner’s proposed construction, however, differs significantly from the definition provided in the specification. First, Petitioner’s construction refers to “sets of data” that are compared for visual similarity, but it does not reflect the specification’s requirement for comparison “side by side” specifically with “original (never compressed) image data.” See Ex. 1001, 9:55–60. Second, Petitioner’s construction makes no mention of the specification’s requirement that the comparison be made based on display “on the same display device.” See *id.* Third, Petitioner’s construction looks to whether the data sets are “substantially visually similar,” but does not explain how or why that benchmark differs from the specification’s requirement that a person of ordinary skill “would not be able to determine which image is the original with a reasonable degree of accuracy, based only on a visual inspection of the images.” See *id.*

Although the claim term at issue is “substantially visually lossless” whereas the specification defines “visually lossless,” Petitioner does not indicate that they should be considered differently or explain its deviations from the specification’s definition. Nor do we discern any basis to deviate from that definition to the extent required to adopt Petitioner’s proposed construction. Thus, we determine Petitioner’s construction to be incomplete and insufficiently supported in light of the specification. See *Phillips*, 415 F.3d at 1315–16. Although Patent Owner does not dispute Petitioner’s construction at this time, Petitioner is required to present a full explanation

of its position and how the relevant evidence and governing law support its proposed construction, as part of its overall burden to demonstrate a reasonable likelihood of prevailing. See 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(3). We determine the Petition did not adequately do so.

Consequently, based on the available evidence and for purposes of this Decision, we construe “substantially visually lossless” as “substantially indistinguishable from the original (never compressed) image, to a reasonable degree of accuracy, when compared side by side on the same display device by a person of ordinary skill, based only on a visual inspection of the images,” consistent with the definition provided in the specification of the ’299 Patent.

C. Alleged Unpatentability Under § 103(a)

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

⁶ Neither party presented any evidence or argument regarding secondary considerations of non-obviousness at this stage of the case. Thus, we do not consider any such considerations in our analysis for this Decision.

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

As noted above, Petitioner contends that claims 1–9, 11, 12, 14–24, 26, 27, and 29 are obvious in view of Presler, Mølgaard, and Chui; claims 10 and 25 are obvious in view of Presler, Mølgaard, Chui, and Sodini; and claims 13 and 28 are obvious in view of Presler, Mølgaard, Chui, and Frost-Ruebling. Pet. 10–11.

1. *Overview of Presler*

Presler relates to a digital camera system. Ex. 1005, 5:19–23. The camera system includes one or more image sensor units, which record “high definition raw images at film or video rates for HD, 2K and 4K, cinema quality production.” *Id.* at 6:19–22. A processor in the system executes software that can conduct various image processing functions, including compression of image data. *Id.* at 11:8–19. “For bayer image sources, the software 38 can be used to select the demosaic method, based on the available processing capability.” *Id.* at 14:37–39.

2. *Overview of Mølgaard*

Mølgaard relates to “lossless or reversible, near-lossless, and lossy compression and decompression of digital image data.” Ex. 1006, 1:6–11. “In high quality digital imaging, an important feature is to get the recorded

data stored or transmitted as fast as possible to make the camera ready for the next exposure as fast as possible.” *Id.* at 2:38–41. Thus, Mølgaard discloses “a method and an apparatus for performing fast on-the-fly compression of image data to generate small compressed image data files which can be stored and/or transmitted cheaply and efficiently.” *Id.* at 2:42–46. “Lossy compression gives even smaller compressed image data files, and allows for even faster and cheaper handling of files, but also deteriorates the quality of the decompressed image.” *Id.* at 2:59–62. Thus, Mølgaard describes a scheme using “near-lossless compression . . . to provide a compression that is visually lossless.” *Id.* at 2:62–66. “By deliberately reducing bits whose significance will later be suppressed in presenting the image, no noticeable loss is introduced, such reduction is called near-lossless.” *Id.* at 3:4–7.

3. *Overview of Chui*

Chui relates to compressing and decompressing video images. Ex. 1015, 11:52–54. In particular, Chui describes a compressor that is “programmed in such a manner as to perform lossless decompression” by applying a “conventional technique, such as Huffman encoding, adaptive Huffman encoding, arithmetic encoding, LSQ coding, and the like.” *Id.* at 17:62–18:3.

4. *Analysis*

All of the asserted grounds of unpatentability rely on the combination of Presler, Mølgaard, and Chui for the limitations of the independent claims. *See* Pet. 17–71. Patent Owner argues that Presler does not qualify as prior art because the invention as claimed in at least 25 of the 29 challenged claims was actually reduced to practice by March 2007, i.e., before the

alleged priority date of Presler. Prelim. Resp. 32–33. As explained below, however, we determine that, even assuming *arguendo* that Presler qualifies as prior art, Petitioner has not shown a reasonable likelihood of prevailing in its contention that the challenged independent claims are obvious in view of Presler, Mølgaard, and Chui.

Claim 1 recites a compression module that is “configured to compress the processed image data with a Huffman compression technique into compressed processed image data such that the compressed processed image data can be decompressed and demosaiced into a substantially visually lossless image of at least 2 k resolution.” Claim 15 recites a nearly identical limitation. Petitioner begins by asserting that Mølgaard teaches lossless compression of processed image data, and that Chui teaches compressing video data using Huffman encoding, which was a known lossless compression technique. Pet. 39–40. According to Petitioner, a person or ordinary skill would have been motivated to apply Chui’s Huffman compression to Mølgaard’s compression of processed image data because Mølgaard itself teaches the use of “lossless compression.” *See id.* at 40.

As Patent Owner notes, however, Mølgaard actually urges the use of *near-lossless* compression. Prelim. Resp. 70–71. For example, Mølgaard indicates that “[i]n the present invention, *near-lossless compression* is implemented using a gamma function to provide a compression that is *visually lossless*.” Ex. 1006, 2:62–64 (emphases added). In other words, Mølgaard teaches that using near-lossless techniques (rather than truly lossless techniques) is sufficient to produce “visually lossless” images. *See id.* Petitioner does not explain adequately why a skilled artisan nonetheless would have been motivated to combine Mølgaard with Chui for its truly

lossless Huffman compression when Mølgaard teaches that its near-lossless technique was sufficient. See Pet. 42–43.

Petitioner notes (Pet. 39) that Mølgaard states, “[t]he next stage in the algorithm is an optional lossy bit reduction stage used to adjust the compression ratio, the stage is bypassed *if lossless compression is desired*.” Ex. 1006, 10:32–34 (emphasis added). At most, however, this indicates that using lossless compression was known at the time of Mølgaard, which is undisputed. Mølgaard proceeds to describe how “[t]he use of a gamma-function [in the bit reduction stage] to implement a near-lossless data reduction yields a very high quality image” with image artifacts that are “simple quantization errors” that “can easily be removed,” which is “a huge advantage of the present invention.” *Id.* at 10:56–11:15; see also *id.* at 15:20–25 (“Using the near-lossless compression setting, a typical high-quality image will be compressed to 1/8th The image quality achieved is superior . . . as visual image artifacts are totally absent”). Petitioner does not address Mølgaard’s teachings regarding near-lossless compression at all; in fact, Petitioner appears to treat them as teachings of lossless compression. See Pet. 42–43. We are not persuaded Petitioner explained adequately why a person of ordinary skill, based primarily on the teachings of Mølgaard (as Petitioner urges), would have been motivated to replace its near-lossless technique with Chui’s lossless Huffman technique.⁷

⁷ Although not specifically addressed by either party, we further note that Mølgaard indicates its compression method “avoids the use of for instance a large *Huffman* encoding table,” which uses far more storage space than Mølgaard’s method. Ex. 1006, 14:33–37 (emphasis added).

Additionally, as discussed above, we construe the term “substantially visually lossless,” recited in both independent claims, as “substantially indistinguishable from the original (never compressed) image, to a reasonable degree of accuracy, when compared side by side on the same display device by a person of ordinary skill, based only on a visual inspection of the images.” On this record, we are not persuaded that Petitioner has shown adequately that its asserted combination of prior art teaches or suggests this portion of the claim.⁸

Petitioner first asserts that “Presler further teaches that compressed data can be decompressed and demosaiced into a substantially visually lossless image of at least 2k resolution.” Pet. 41 (citing Ex. 1003, 60). The cited evidence⁹ is a portion of Dr. Reader’s Declaration that discusses the asserted prior art references. Ex. 1003, 60–64. Nowhere in this testimony does Dr. Reader explain or opine that Presler teaches that compressed data would be substantially indistinguishable from original, never compressed image data when compared by a person of ordinary skill on the same display device. Indeed, this testimony does not support a conclusion that Presler teaches the “substantially visually lossless” limitation even under Petitioner’s proposed construction, because there is no mention of any comparison done “from the point of view of one of ordinary skill in the art”

⁸ Although Patent Owner did not argue in its Preliminary Response that the Petition is deficient in this manner, it is Petitioner’s burden to demonstrate a reasonable likelihood of prevailing, and we conclude Petitioner did not meet that burden.

⁹ A review of the Reader Declaration makes clear that the citation to page 60 was an error. We considered pages 60–64 in our analysis.

to determine if the compressed image data is “substantially visually similar” to some other data set. *See* Pet. 9.

Next, Petitioner argues that Mølgaard teaches the “substantially visually lossless” limitation because of its disclosure that near-lossless compression can provide visually lossless compression. Pet. 42. Neither Petitioner nor Dr. Reader explains, however, whether Mølgaard would have taught a person of ordinary skill that the compressed data would be substantially indistinguishable from original, never compressed image data when compared by a person of ordinary skill on the same display device. Although Mølgaard uses the term “visually lossless,” Petitioner fails to show (or even address) whether that aspect of Mølgaard meets the proper understanding of the *claim term* that is compelled by the specification of the ’299 Patent. Moreover, even were we to apply Petitioner’s incomplete construction of “substantially visually lossless,” Petitioner fails to provide explanation, or identify evidence, to support a determination that Mølgaard teaches the limitation, because (like with Presler) there is no mention of any comparison done “from the point of view of one of ordinary skill in the art” to determine if the compressed image data is “substantially visually similar” to some other data set. *See* Pet. 9.

For the reasons explained above, we determine that Petitioner has not demonstrated a reasonable likelihood of prevailing on its asserted grounds of unpatentability against the challenged claims, all of which rely on the same positions based on the combination of Presler, Mølgaard, and Chui for the limitations of the independent claims.

CONCLUSION

For the foregoing reasons and on the present record, we determine that the information presented in the Petition does not demonstrate a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claims 1–29 of the '299 Patent.

ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied* and no trial is instituted.

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