

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC. and AMAZON.COM SERVICES LLC,
Petitioner,

v.

NOKIA TECHNOLOGIES OY,
Patent Owner.

IPR2024-00920
Patent 8,077,991

Before SCOTT B. HOWARD, STEVEN M. AMUNDSON, and
JASON M. REPKO, *Administrative Patent Judges*.

HOWARD, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Amazon.com, Inc. and Amazon.com Services LLC (collectively, “Petitioner”) filed a Petition (Paper 4, “Pet.”) requesting *inter partes* review of claims 22–24, 26, 29–33, 35, and 38 (“the challenged claims”) of U.S. Patent No. 8,077,991 (Ex. 1001, “the ’991 patent”). Nokia Technologies Oy (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”).

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 (2024) and 37 C.F.R. § 42.4(a) (2024). *Inter partes* review may not be instituted unless “the information presented in the petition filed under section 311 and any response filed under section 313 shows that 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). “When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” 37 C.F.R. § 42.108(a).

For the reasons set forth below, upon considering the briefing and the evidence of record, we determine that Petitioner has not established a reasonable likelihood that it will prevail in proving the unpatentability of at least one challenged claim of the ’991 patent. Accordingly, we deny Petitioner’s request and do not institute an *inter partes* review.

B. *Real Parties in Interest*

Petitioner identifies Amazon.com, Inc. and Amazon.com Services, LLC as the real parties in interest. Pet. 82.

Patent Owner identifies itself as the real party in interest. Paper 5, 2 (Patent Owner’s Mandatory Notices).

C. Related Matters

The parties identify *Nokia Corporation v. Amazon.com, Inc.*, 1-23-cv-01232 (D. Del.); *Nokia Technologies Oy v. HP, Inc.*, 1-23-cv-01237 (D. Del.); and *In re Certain Video Capable Electronic Devices, Including Computers, Streaming Devices, Televisions, and Components and Modules Thereof*, Inv. No. 337-TA-1038 (ITC) as related matters. Pet. 82–83; Paper 5, 2. Patent Owner also identifies *Nokia Technologies Oy v. Amazon.com Inc.*, 1-23-cv-01236 (D. Del.) as a “proceeding[] involving” the ’991 patent. Paper 5, 2.

Concurrently with the filing of the Petition, Petitioner submitted another petition for *inter partes* review of the ’991 patent: IPR2024-00921. Petitioner filed a document ranking the petitions in the instant case and IPR2024-00921 and explaining the material differences between the petitions. See Paper 3 (Statement Regarding Multiple Petitions (“Ranking”)).

D. The ’991 Patent

The ’991 patent is titled “Spatially Enhanced Transform Coding” and “relates to the coding and decoding of digital video material,” and, more particularly, “to prediction error coding in both frequency and spatial domains.” Ex. 1001, code (54), 1:6–9. The embodiments of the ’991 patent “represent[] the prediction error signal as a weighted sum of different basis functions of a selected transform and quantized spatial samples,” and “the prediction error signal for a single image block is constructed using both transform basis functions and spatial samples,” allowing “for the utilization of those selected transform basis functions that give good overall representation of the image block with minimal amount of transform coefficients.” *Id.* at 2:58–3:5.

Figure 4 of the ’991 patent is reproduced on the next page.

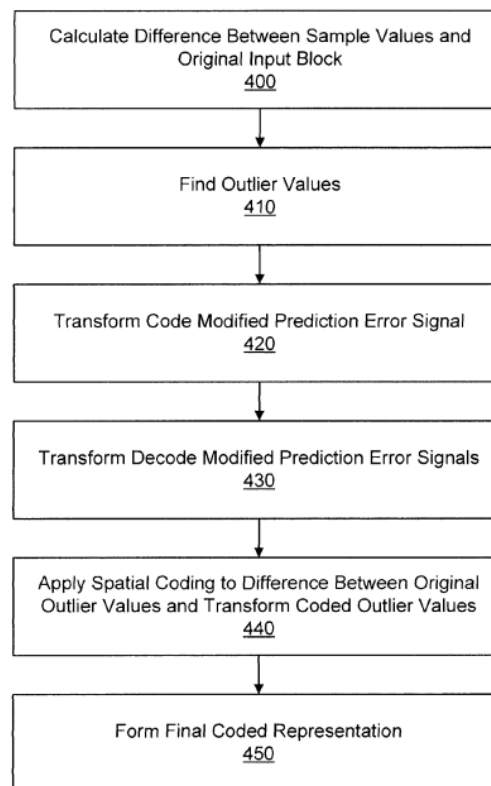


FIG. 4

Figure 4 “is a flow chart showing one encoder algorithm which may be used in . . . the present invention.” Ex. 1001, 5:24–26. Specifically, Figure 4 illustrates calculating “the difference between sample values of a predicted block and an original input block” at 400, finding outlier values at 410, transform coding “the modified prediction error signal . . . with the outlier values being substituted by interpolated representations of those values” at 420, transform decoding “the modified prediction error signals . . . back to the spatial domain” at 430, applying “spatial coding . . . to the difference between the original outlier values and the transform decoded outlier values” at 440, and forming “the final coded representation of the prediction error signal . . . by joining the transform coded data and the spatial coded data” at 450. *Id.* at 5:28–49.

Figure 5 of the '991 patent is reproduced below.

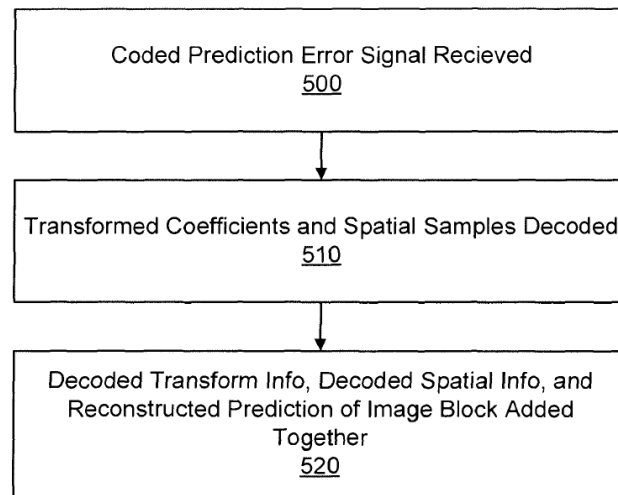


Figure 5 “shows a decoding process according to various embodiments of the present invention.” Ex. 1001, 6:47–48.

At 500 in FIG. 5, a video decoder receives a coded prediction error signal which comprises both transformed coefficients and spatial samples. At 510, both the transformed coefficients and the spatial samples are decoded. At 520, the decoded transform information, the decoded spatial information and reconstructed prediction of the image block are added together to form decoded representation of the image block.

Id. at 6:48–55.

E. Illustrative Claim

Claims 22 and 31 are independent claims and claim 22, reproduced below, is illustrative of the subject matter of the challenged claims.

22. [22pre] A method, comprising:

[22a] receiving a coded prediction error signal, the coded prediction error signal including a plurality of transform coefficients and a plurality of spatial samples;

[22b] decoding, by a processor, the plurality of transformed coefficients into decoded transform information;

[22c] decoding, by a processor, the plurality of spatial samples into decoded spatial information; and

[22d] adding, by a processor, the decoded transform information, the decoded spatial information, and a reconstructed prediction of the block of data, thereby forming a decoded representation of the block of data.

Ex. 1001, 9:62–10:6; *see also* Pet. 85 (adding limitation designations).

F. Prior Art and Asserted Grounds

Petitioner asserts that the challenged claims would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
22–24, 26, 30–33, 35	103(a)	Koga ²
22–24, 26, 29–33, 35, 38	103(a)	Koga, Lin ³
22–24, 26, 29–33, 35, 38	103(a)	Koga, Narroschke ⁴
22–24, 26, 29–33, 35, 38	103(a)	Koga, Lin, Narroschke

Pet. 19.

Petitioner also relies on the testimony of Charles D. Creusere, Ph.D. (Ex. 1003). Patent Owner relies on the testimony of Michael Orchard, Ph.D. (Ex. 2001).

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102 and 103 that became effective on March 16, 2013. Because the ’991 patent was filed on April 10, 2008 (Ex. 1001, code (22)), prior to the AIA effective date, we apply the pre-AIA version of the statute.

² US 4,723,161, issued Feb. 2, 1988 (Ex. 1004).

³ US 2006/0268990 A1, published Nov. 30, 2006 (Ex. 1005).

⁴ US 2011/0038410 A1, PCT filing date Dec. 22, 2006, published Feb. 17, 2011 (Ex. 1006).

II. ANALYSIS

A. Legal Standards

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under 35 U.S.C. § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) if in evidence, “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the U.S. Court of Appeals for the Federal Circuit has repeatedly emphasized that “it is error to reach a conclusion of obviousness until all those factors are considered,” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Because Patent Owner does not address objective evidence of non-obviousness, we focus solely on the first three *Graham* factors.

B. Level of Ordinary Skill in the Art

The level of ordinary skill in the pertinent art at the time of the invention is a factor in how we construe patent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It is also one of the factors we consider when determining whether a patent claim would have been obvious over the prior art. *See Graham*, 383 U.S. at 17–18.

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*,

713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). “Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case.” *Id.*

Petitioner argues that a person having ordinary skill in the art “would have had a (1) bachelor’s degree in electrical engineering, computer engineering, computer science, or a comparable field of study, and (2) approximately two to three years of practical experience with video and/or image processing or coding.” Pet. 25 (citing Ex. 1003 ¶¶ 60–63). Petitioner further argues that “[a]dditional experience can substitute for the level of education, and vice-versa.” *Id.* (citing Ex. 1003 ¶¶ 60–63). Petitioner also identifies knowledge that a person having ordinary skill in the art would have. *Id.* at 25–26 (citing Ex. 1003 ¶ 64).

Patent Owner states that it “has applied Petitioner’s [person having ordinary skill in the art] for the sake of this Response.” Prelim. Resp. 21.

Because Petitioner’s proposed level of ordinary skill in the art is consistent with the field of the invention of the ’991 patent and not disputed by Patent Owner, we adopt Petitioner’s formulation of the person having ordinary skill in the art.

C. Claim Construction

We apply the same claim construction standard used in the federal courts, in other words, the claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under the *Phillips* standard, the “words of a claim ‘are generally given their ordinary and customary meaning,’” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention,

i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13.

Petitioner argues that the term “spatial samples” means “pixel values.”

Pet. 26. Patent Owner agrees. Prelim. Resp. 21.

1. *Spatial Samples v. Spatial Information*

Claim 22, limitation 22a recites “receiving a coded prediction error signal, the coded prediction error signal including . . . a plurality of spatial samples.”

Ex. 1001, 9:63–65. Claim 22, limitation 22c recites “decoding, by a processor, the plurality of spatial samples into decoded spatial information.” *Id.* at 10:1–2.

Based on the language of those limitations, “spatial samples” and “spatial information” do not refer to the same thing.

Based on the ordinary meaning of the phrases, “spatial samples” and “spatial information” must refer to different information. Because the “spatial samples [are] decoded into spatial information,” the decoded “spatial information” must be different than the coded “spatial samples.” If “spatial information” were the same as “spatial samples,” then there would be nothing to decode.

That construction is consistent with the claim construction rule that different terms are presumed to have different meanings. *See MicroStrategy Inc. v. Bus. Objects Ams.*, 238 F. App’x 605, 609 (Fed. Cir. 2007) (citing *CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings.”); *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) (“[T]he use of two terms in a claim requires that they connote different meanings”)). Here, we see no evidence that the claim phrases have the same meaning.

To the contrary, the '991 patent uses the term spatial samples to refer to the image's pixel values. *See, e.g.*, Ex. 1001, 2:65–67 (“the prediction error signal for a single image block is constructed using both transform basis functions and spatial *samples* (i.e., pixel values)”) (emphasis added); *id.* at 4:21–26 (same). The spatial information, however, refers to the result of decoding. *See, e.g., id.* at 3:29–30 (“the plurality of spatial *samples* are decoded into *decoded spatial information*”) (emphasis added); *id.* at 6:53–55 (“the *decoded spatial information* and reconstructed prediction of the image block are added together to form the decoded representation of the image block”) (emphasis added); *id.*, Fig. 5, 520 (showing “Decoded Spatial Info”). This is consistent with the claim's plain language. *See id.* at 10:1–2 (claim 22 reciting “decoding, by a processor, the plurality of spatial samples *into decoded spatial information*”) (emphasis added).

Accordingly, “spatial samples” and “spatial information” do not refer to the same thing.

2. Remaining Claim Terms

For purposes of this decision we need not expressly construe any other claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

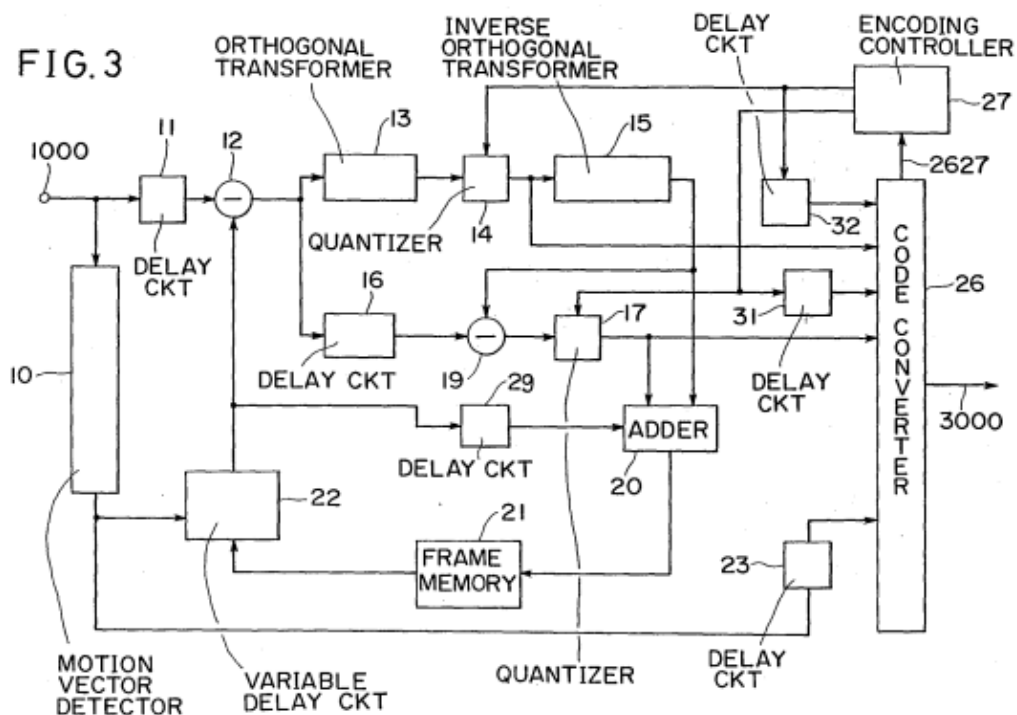
D. Obviousness over Koga

Petitioner argues that claim 22–24, 26, 30–33, and 35 would have been obvious over Koga. *See* Pet. 28–81. For the reason set forth below, we are not sufficiently persuaded by Petitioner's arguments.

1. Overview of Koga

Koga is titled “Method and Arrangement of Coding Digital Image Signals Utilizing Interframe Correlation” and is directed to “maintaining high data compression as well as high resulting images” by orthogonally transforming and subjecting “a motion compensated interframe prediction error” to quantization, with “the quantized error signal undergo[ing] inverse orthogonal transformation,” and quantizing “a difference between the inversely orthogonally transformationed error signal and the original prediction error signal” in “order to compensate for distortions caused by the quantization.” Ex. 1004, codes (54), (57). Koga allows “the influence or contribution of the orthogonal transformation [to] be controlled continuously” by “selecting the quantization characteristics.” *Id.* at code (57).

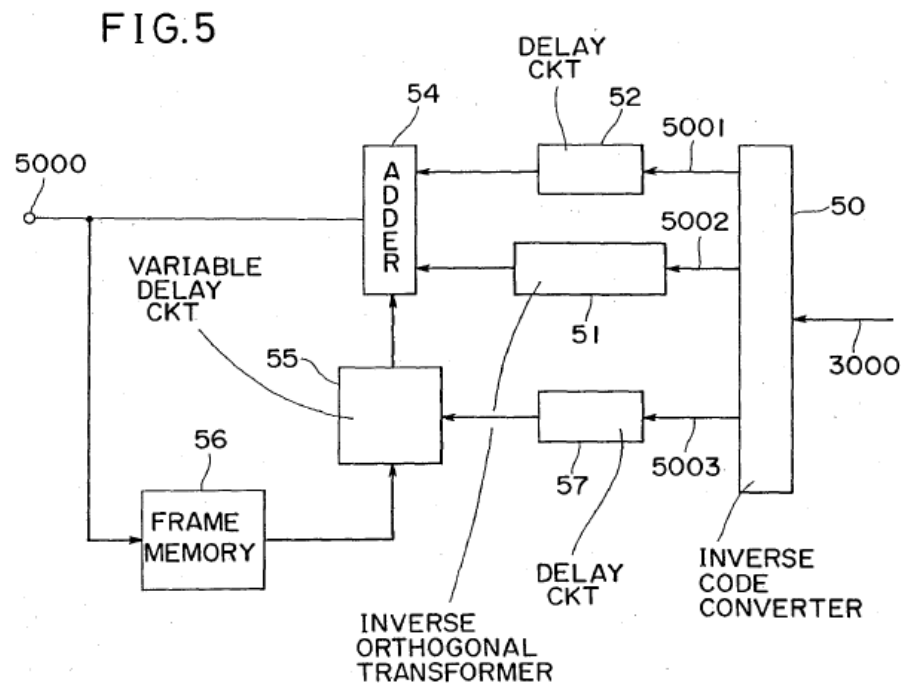
Koga Figure 3 is reproduced on the next page.



Koga Figure 3 illustrates an encoder including “motion vector detector 10, delay circuits 11, 16, 23, 29, 31 and 32, subtracters 12 and 19, an orthogonal transformer

13, quantizers 14 and 17, an inverse orthogonal transformer 15,” “a frame memory 21, a memory delay circuit 22, a code converter 26, and an encoding controller 27.” *Id.* at 4:34–41. Detector 10 can “detect the magnitude of velocity and direction . . . of an object” and then apply “the motion vectors detected to the variable delay circuit 22 and the delay circuit 23.” *Id.* at 4:44–49. “The variable delay circuit 22 is supplied with a locally decoded signal from the frame memory 21, and provides same with a delay according to the motion vector received, and then applies the output . . . to the subtracter 12 and the delay circuit 29.” *Id.* at 4:49–54. “The delay circuit 11 provides . . . a delay corresponding to the time period required to detect the motion vector at the detector 10, and applies the output . . . to the subtracter 12,” which “determines the difference between the two signals applied thereto, and outputs prediction error signals which are applied to the delay circuit 16.” *Id.* at 4:57–64. Then, “[t]he output of the subtracter 12 undergoes orthogonal transformation . . . at the orthogonal transformer 13 on a block by block basis,” and “[t]he output of the orthogonal transformer 13 is then quantized at the quantizer 14, and thereafter fed to the inverse orthogonal transformer 15 and the code converter 26.” *Id.* at 4:64–5:7. The “delay circuit 16 serves to delay the prediction error signal applied thereto by a time duration which the orthogonal transformer 13 requires to process the incoming prediction error signal,” and the “subtracter 19 derives the difference between the outputs of the delay circuit 16 and the inverse orthogonal transformer 15.” *Id.* at 5:10–16. “The output of the subtracter 19 is quantized at the quantizer 17 which applies its output to the code converter 26 and to the adder 20,” and the “delay circuit 29 provides the prediction error signal, which is applied from the variable delay circuit 22, with a delay corresponding to the time period which the blocks 13 and 15 require to process the incoming signals and to generate the outputs.” *Id.* at 5:16–24.

Koga Figure 5 is reproduced below and shows a block diagram of a decoder.



Koga Figure 5 illustrates a decoder including “an inverse code converter 50, two delay circuits 52 and 57, an inverse orthogonal transformer 51, an adder 54, a variable delay circuit 55, and a frame memory 56.” Ex. 1004, 6:27–33.

Transmission line 3000 feeds into inverse code converter 50, and the outputs of the decoder are sent via lines 5001, 5002, and 5003. *Id.* Fig. 5, 6:34–7:19.

The block 51 inversely orthogonally transforms the decoded signal applied over the line 5002, wherein there is no problem if a signal to be fed to the delay circuit 52 is present in the signal fed to the transformer 51. Similarly, if the signal applied to the delay circuit 52 over the line 5001 includes a correctly decoded signal, then proper decoding operation is ensured. The input to the delay circuit 52 is delayed by a time which the inverse orthogonal transformer 51 requires for the operation thereof. The delay circuit 57 provides the decoded motion vector with the same delay as the delay circuit 52. The variable delay circuit 55 is supplied with the delayed motion vector and the output of the frame memory 56, and produces a prediction signal using the delay vector. The prediction signal is

applied to the adder 54. The adder 54 further receives the outputs of the blocks 51 and 52d, and decodes the image signal which is applied to an out[p]ut terminal and also to the frame memory 56. The frame memory 56 is sized to store one frame signal and outputs the preceding frame signal to the variable delay circuit 55. The variable delay circuit is arranged in a similar manner as its counterpart provided in the encoder shown in FIG. 3.

Id. at 7:20–43.

2. *Analysis of Claims 22–24, 26, 30–33, and 35*

Claim 22, limitation 22a recites “receiving a coded prediction error signal, the coded prediction error signal including . . . a plurality of spatial samples.” Ex. 1001, 9:63–65. Claim 22, limitation 22c further recites “decoding, by a processor, the plurality of spatial samples into decoded spatial information.” *Id.* at 10:1–2.

Petitioner argues that Koga teaches a “coded prediction error signal including . . . a plurality of spatial samples” as recited in limitation 22a. Pet. 35–38. Specifically, Petitioner argues that “subtractor 19 determines the difference between the prediction error signal (first input) and the reconstructed prediction error signal (second input),” which “is a residual of the prediction error.” *Id.* at 37 (citing Ex. 1003 ¶¶ 93–95; Ex. 1004, Fig. 4, 5:4–16). Petitioner further argues that a person having ordinary skill in the art “would have understood that the residual of the prediction error is a plurality of spatial samples.” *Id.* (citing Ex. 1003 ¶ 96). That is, according to Petitioner, a person having ordinary skill in the art would have recognized that the outputs of subtracter 19 are spatial samples. *See id.* at 37 (citing Ex. 1003 ¶ 96), 35 (citing Ex. 1003 ¶ 91). Petitioner also

argues that the spatial samples/residual of the prediction error is then quantized⁵ at quantizer 17 before being entropy coded by code converter 26. *Id.* at 35 (citing Ex. 1003 ¶ 91), 38 (citing Ex. 1004, 6:4–9, 6:15–22, Fig. 4; Ex. 1003 ¶ 97).

According to Petitioner, after the entropy coding, the spatial information is multiplexed with transform coefficients and then transmitted via transmission line 3000. *See* Pet. 34 (citing Ex. 1003 ¶ 89), 38 (citing Ex. 1003 ¶ 97); *see also* Ex. 1003 ¶ 78. Petitioner also argues that transmission line 3000 feeds into inverse code converter 50. Pet. 28–29 (citing Ex. 1003 ¶ 78; Ex. 1004, Figs. 3, 5, 3:6–12, 3:18–19).

Petitioner also argues that Koga teaches “decoding, by a processor, the plurality of spatial samples into decoded spatial information” as recited in limitation 22c. Pet. 42–44. Specifically, Petitioner argues that the output of inverse code converter 50 via line 5001 is decoded spatial samples: “For example, Figure 5 discloses decoding signal 3000, which includes both transformed coefficients and spatial samples (*see* limitation [22a]). Figure 5 shows inverse code converter 50 decoding signal 3000 to output signal 5001 (carrying decoded spatial samples) and signal 5002 (carrying decoded transformed coefficients).” *Id.* at 42 (citing Ex. 1003 ¶ 106). Petitioner further argues a person having ordinary skill in the art would have understood “that signal 5001 carries the decoded spatial information because decoder 501 decodes the spatial samples and feeds them to line 5001.” *Id.* at 43 (citing Ex. 1004, 7:3–19, Fig. 6; Ex. 1003 ¶ 107). More specifically, Petitioner argues that the output of decoder 501 (which is a component of inverse code converter 50) is the residual of the prediction error,

⁵ “Quantization is a lossy-compression method that intentionally introduces noise or distortion into the data in a controlled manner by selectively removing bits.” Ex. 1003 ¶ 18.

which a person having ordinary skill in the art would have understood to be decoded spatial information:

First, demodulator/demultiplexer 500 demultiplexes signal 3000 to produce the “difference between the prediction error and the result of the inverse orthogonal transformation (via a line 5056),” which is the residual of the prediction error. Ex-1004, 6:34–49; [Ex. 1003] ¶ 95. This signal, including the demultiplexed entropy-coded transform coefficients, is then applied to decoder 501 via delay circuit 506. Ex-1004, 6:59–7:2. “[D]ecoder 501 decodes...the difference between the prediction error signal and the inverse orthogonal transformation . . .[,]” i.e., *the residual of the prediction error*. Ex-1004, 7:4–9, 8:63–10:9. A POSITA would have understood that decoding the residual in this manner results in a decoded version of the spatial information that was encoded at the encoder, *therefore producing **decoded spatial information***.

Id. at 43–44 (italics added, bold in original, alterations in original).

We are not persuaded by Petitioner’s argument. Petitioner maps both spatial samples and spatial information to the residual of the prediction error. *Compare* Pet. 37 (referring to spatial samples as the residual of the prediction error), *with id.* at 44 (referring to spatial information as the residual of the prediction error). However, because spatial samples and spatial information cannot refer to the same thing, they cannot both be the residual of the prediction error. *See* Section II.C.1 *supra*. Accordingly, Petitioner has not sufficiently shown that claim 22, along with dependent claims 23, 24, 26, and 30 would have been obvious over Koga. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.”); Pet. 47–63 (relying on the analysis of claim 22 for the spatial samples and spatial information limitations).

With regard to independent claim 31, along with dependent claims 32, 33, and 35, Petitioner relies on the same arguments discussed above for limitation 22a

and 22c to show that Koga teaches commensurate limitations 31c and 31d. *See* Pet. 54 (“As explained above, Koga teaches the shared substantive limitations of [22a]–[22d] (*supra* §§VI.A.1) that correspond to limitations [31b]–[31e].”). Accordingly, for the same reasons discussed above for claim 22, we are not sufficiently persuaded by Petitioner’s arguments that independent claim 31, along with dependent claims 32, 33, and 35 would have been obvious in view of Koga.

E. Obviousness over Koga and Lin

1. Overview of Lin

Lin is directed to a “video encoder” with an “adaptive quantization module [that] quantizes a block according to a quantization method adaptively determined based upon a block classification assigned by the region detection module.” Ex. 1005, code (57).

Figure 5 of Lin is reproduced below.

FIG. 5

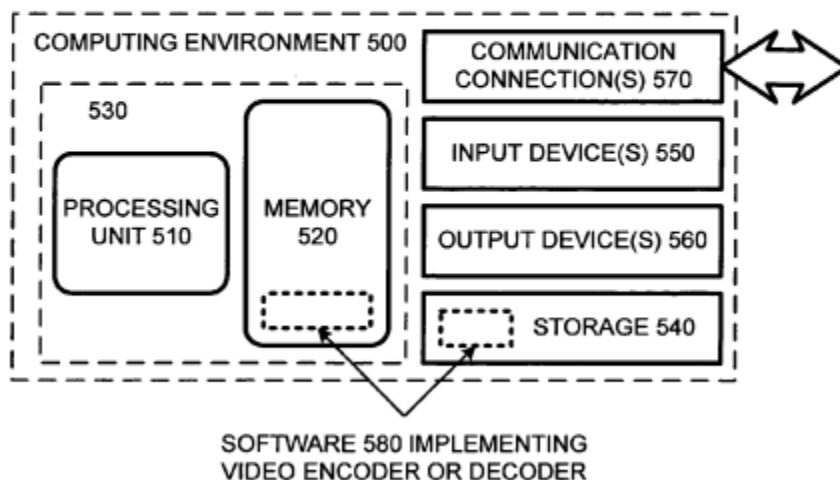


Figure 5 depicts a block diagram “of a suitable computing environment” for the described embodiments in Lin. Ex. 1005 ¶ 40. Figure 5 illustrates a “computing

environment 500” that “includes at least one processing unit 510 and memory 520,” which “stores software 580 implementing a video encoder (with adaptive encoding options according to a perceptual model) or decoder.” *Id.* ¶ 52.

2. Analysis of Claims 22–24, 26, 29–33, 35, and 38

Petitioner argues that claims 22–24, 26, 29–33, 35, and 38 would have been obvious in view of the combination of Koga and Lin. *See* Pet. 47–64. With respect to independent claim 22, Petitioner relies on Lin for its teaching “of a computing environment, including a processor and interconnected memory/storage, that implements a video encoder/decoder in the form of computer-executable instructions/software stored in the computing environment’s memory/storage.” Pet. 48. In other words, in this combination, Petitioner relies only on Koga for “spatial samples” and “spatial information.” Accordingly, for the reasons discussed above in Section II.D.2, we are not sufficiently persuaded that claims 22–24, 26, 29–33, 35, and 38 would have been obvious over the combination of Koga and Lin.

F. Obviousness over (1) Koga and Narroschke and (2) Koga, Lin, and Narroschke

1. Overview of Narroschke

Narroschke “relates to a method for coding a video signal using hybrid coding.” Ex. 1006, code (57). Narroschke “establish[es] a prediction error signal” and “decid[es] whether to transform the prediction error signal into the frequency domain, or to maintain the prediction error signal in the spatial domain for encoding.” *Id.*

2. Analysis of Claims 22–24, 26, 29–33, 35, and 38

Petitioner argues that claims 22–24, 26, 29–33, 35, and 38 would have been obvious over the combinations of (1) Koga and Narroschke and/or (2) Koga, Lin, and Narroschke. Pet. 19, 64–81. Petitioner relies on “Narroschke’s teaching of

using (1) a flag to indicate coding of a block in the frequency/spatial domain, and (2) modern entropy coding methods (CABAC/CAVLC).” Pet. 64. In other words, in this combination, Petitioner relies only on Koga for “spatial samples” and “spatial information.” Accordingly, for the reasons discussed above in Section II.D.2, we are not sufficiently persuaded that claims 22–24, 26, 29–33, 35, and 38 would have been obvious over the combination of (1) Koga and Narroschke and/or (2) Koga, Lin, and Narroschke.

III. 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 any of the challenged claims of the ’991 patent.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied*.

IPR2024-00920
Patent 8,077,991

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