

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

UNILOC 2017 LLC,
Patent Owner.

IPR2020-00447
Patent 6,329,934 B1

Before ROBERT J. WEINSCHENK, MONICA S. ULLAGADDI,
and SCOTT RAEVSKY, *Administrative Patent Judges*.

RAEVSKY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We instituted an *inter partes* review of claim 1 of U.S. Patent No. 6,329,934 B1 (Ex. 1001, “the ’934 patent”) owned by Patent Owner Uniloc 2017 LLC. Paper 11 (“Dec.”). After considering the evidence and arguments of the parties,¹ we determine that Petitioner Google, Inc. has proven by a preponderance of the evidence that claim 1 is unpatentable. *See* 35 U.S.C. § 316(e). We issue this Final Written Decision according to 35 U.S.C. § 318(a).

The parties’ dispute centers on whether Petitioner’s asserted reference discloses the “modifying” limitation recited in the challenged claim. For the reasons that follow, we determine that Liu discloses the disputed “modifying” limitation, as well as the remaining limitations of claim 1.

II. BACKGROUND

The ’934 patent relates to video editing in a cost-efficient manner. Ex. 1001, 1:5–9, 1:59–60. It describes a system for partially decoding coded data and modifying the partially decoded data, instead of modifying fully coded data (which can be costly). *Id.* at Abstract, 1:26–32. Modification can include, for example, cross fading between two sequences of pictures. *Id.* at 5:16–19. Figure 1 of the ’934 patent below depicts an overview of the system.

¹ Petitioner filed a Petition (Paper 1, “Pet.”). Patent Owner filed a Response (Paper 13, “PO Resp.”). Petitioner then filed a Reply (Paper 14, “Reply”). Patent Owner also filed a Sur-reply (Paper 15, “Sur-reply”). We held a hearing on April 13, 2021 and filed a transcript (Paper 23, “Tr.”).

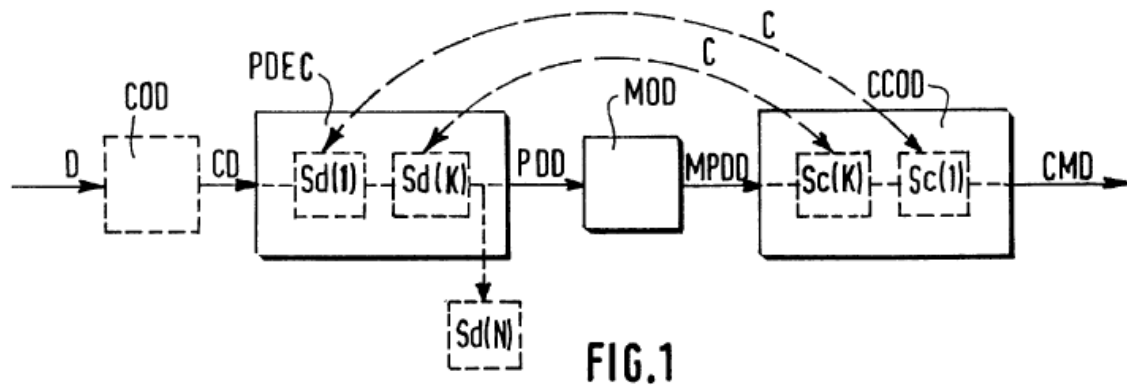


Figure 1 illustrates a system that modifies partially coded data. *Id.* at 2:62–64, 3:12–15. In the system, coder COD codes data D to obtain coded data CD. *Id.* at 2:62–64. Partial decoder PDEC partially decodes data CD to obtain partially decoded data PDD. *Id.* at 2:64–3:3. Next, data-modifier MOD modifies data PDD to obtain modified partially decoded data MPDD. *Id.* at 3:3–5. Complementary coder CCOD complementary codes data MPDD to obtain coded modified data CMD using a series of coding steps. *Id.* at 3:5–10. Each of the coding steps is a complement of a decoding step done by partial decoder PDEC. *Id.* at 3:7–9.

The Petition challenges claim 1 (with disputed limitation italicized):

1. A method of modifying data (D), the data (D) having been coded so as to obtain coded data (CD), the method comprising the steps of:
 - partially decoding (PDEC) the coded data (CD) so as to obtain blocks of prediction-error pixels;
 - modifying (MOD) the blocks of prediction-error pixels so as to obtain modified partially decoded data (MPDD);* and
 - complementary coding (CCOD) the modified partially decoded data (MPDD), so as to obtain coded modified data (CMD).

Pet. 1; Ex. 1001, 11:12–23.

Petitioner asserts the following grounds of unpatentability (Pet. 2–3), supported by the declaration of Dr. Jeffrey J. Rodriguez (Ex. 1002):

Claim Challenged	35 U.S.C. § ²	References
1	102(e)	Liu ³
1	103(a)	Liu, Chitprasert ⁴

III. ANALYSIS

We focus on Petitioner’s anticipation ground because we find it dispositive for reasons explained below. Thus, we do not reach Petitioner’s obviousness ground.

A. Principles of Law

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is anticipated under 35 U.S.C. § 102 “only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). In an anticipation analysis, prior art references must be “considered together with the

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA versions of §§ 102, 103.

³ US 5,907,374, published May 25, 1999 (Ex. 1005).

⁴ Chitprasert et al., *Discrete Cosine Transform Filtering*, Signal Processing (1990) (Ex. 1007).

knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Thus, “extrinsic evidence may be . . . used to explain, but not expand, the meaning of a reference.” *In re Baxter Travenol Labs*, 952 F.2d 388, 390 (Fed. Cir. 1991).

B. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2019).

Petitioner proposes three constructions in the Petition. Pet. 21–32. We preliminarily construed two terms at institution. Dec. 10–17. Post-institution, no dispute remains for any terms or limitations that would rely on our preliminary constructions. Compare PO Resp. 8, with Prelim. Resp. 22, 28. Thus, we need not construe any terms. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy.”) (internal quotation omitted).

C. Asserted Anticipation by Liu

Petitioner contends that Liu anticipates claim 1. Pet. 33–61. For the reasons that follow, we determine that the evidence supports Petitioner’s arguments, despite Patent Owner’s arguments to the contrary.

1. Overview of Liu (Ex. 1005)

Liu describes a system for processing video bitstreams to reduce the processing resources required. Ex. 1005, 1:7–9; 2:62–64. Figure 2 of Liu depicts an example of this system.

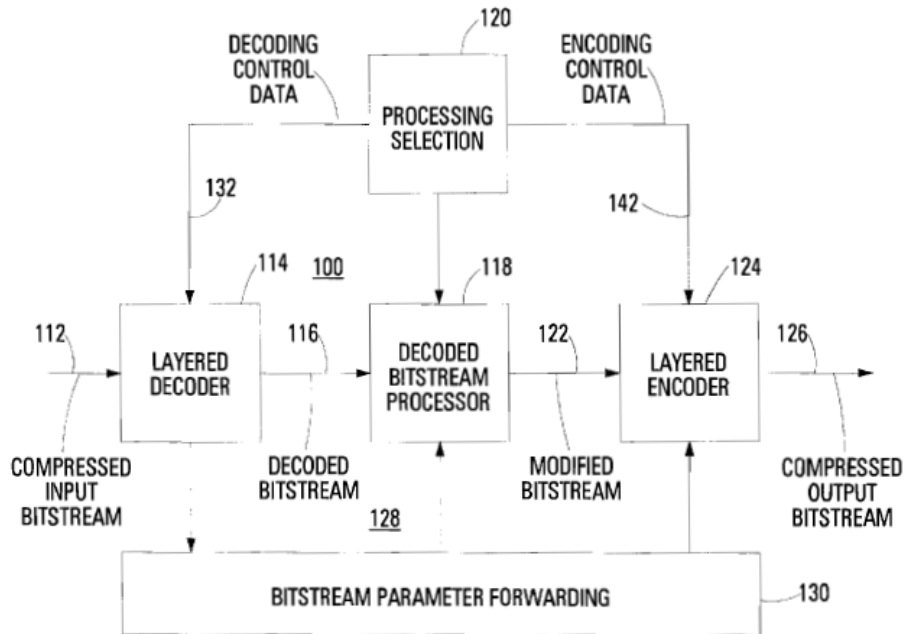


FIG.2

Figure 2 illustrates a compressed bitstream processing apparatus 100 that processes a video bitstream. *Id.* at 5:31–34. In the apparatus 100, layered decoder 114 can partially decode compressed input bitstream 112 to generate decoded bitstream 116. *Id.* at 5:53–65. Decoded bitstream processor 118 processes decoded bitstream 116 to obtain a modified bitstream 122. *Id.* at 6:17–20. This processing can include, for example, color correction, scaling, sharpening, or noise reduction. *Id.* at 10:28–29. Layered encoder 124 can generate compressed output bitstream 126 by partially re-encoding modified bitstream 122. *Id.* at 6:23–26.

2. Independent Claim 1

We focus our analysis on the sole disputed limitation, “modifying (MOD) the blocks of prediction-error pixels so as to obtain modified partially decoded data (MPDD).” *See* PO. Resp. 7–11; *see also LG Elecs., Inc. v. Conversant Wireless Licensing S.A.R.L.*, 759 F. App’x 917, 925 (Fed. Cir. 2019) (nonprecedential) (“The Board is ‘not required to address

undisputed matters’ or arguments about limitations with which it was never presented.”) (quoting *In re NuVasive, Inc.*, 841 F.3d 966, 974 (Fed. Cir. 2016)).

As to the rest of the limitations of claim 1, Petitioner argues, and we find, that Liu discloses them.⁵ See Pet. 33–46, 56–61 (citing Ex. 1002 ¶¶ 84–104, 117–123; Ex. 1005, *passim*). Petitioner identifies where Liu teaches these limitations, supporting this showing with credible testimony from Dr. Rodriguez, which Patent Owner does not dispute. See *id.*; see generally PO Resp.

For the reasons below, we find that Liu also discloses the disputed “modifying” limitation.

a. The parties’ arguments

Petitioner contends that Liu discloses the “modifying” limitation. Pet. 46–56. Petitioner frames its argument based on Liu Figure 3:

⁵ Including the preamble. We need not determine whether it is limiting because we agree with Petitioner that Liu discloses it.

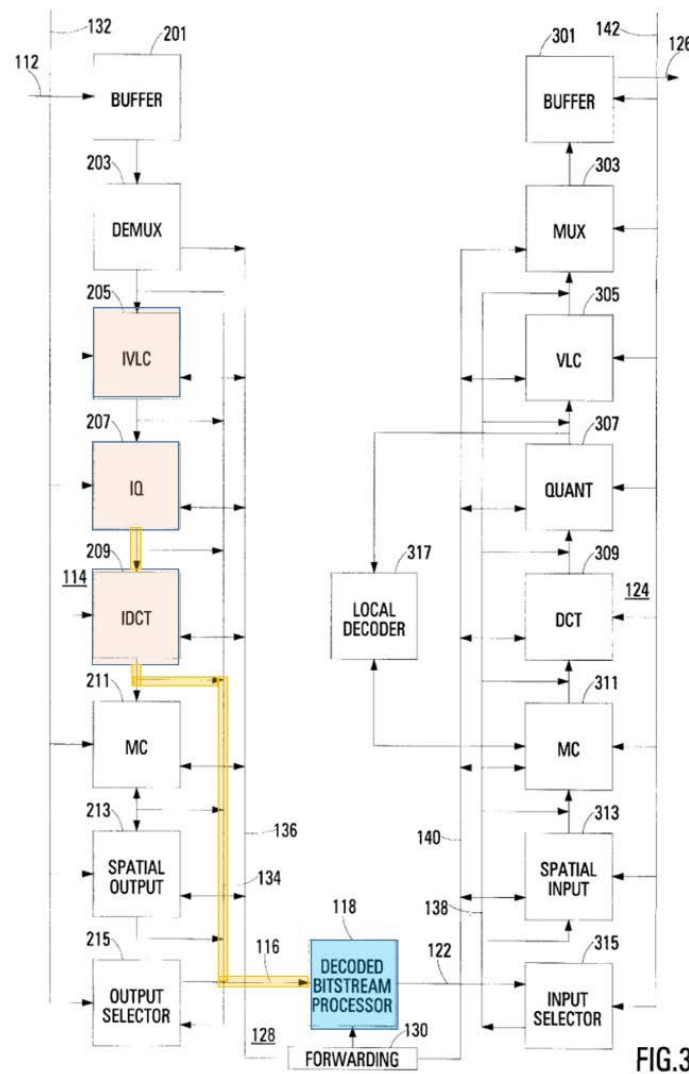


FIG.3

See id. Figure 3 of Liu above, annotated by Petitioner, depicts layered decoder 114 (the left column of modules) and layered encoder 124 (the right column of modules). Ex. 1005, 6:54–56. Between decoder 114 and encoder 124 is decoded bitstream processor 118 (blue) that processes the output from any one of the decoding modules. *Id.* at 9:58–64; 7:4–9. Output bus 134 (yellow) connects the decoder modules—including inverse DCT module 209 (“IDCT”)—to decoded bitstream processor 118. *See id.* at 7:27–32. Output selector 215 “selects the output of one of the decoding modules,” such as

inverse DCT module 209, for output to decoded bitstream processor 118. *Id.* at 9:55–64.

Petitioner argues as follows. Liu’s layered decoder 114 can stop decoding at any of the decoding modules. Pet. 47 (citing Ex. 1005, 9:59–64). For example, output selector 215 can select the output of inverse DCT module 209. *Id.* at 47–48 (citing Ex. 1002 ¶ 108). Inverse DCT module 209 outputs a partially decoded bitstream 116 including “blocks of differences,” which are the claimed blocks of prediction-error pixels. *Id.* at 48 (citing, e.g., Ex. 1005, 8:43–50, Fig. 3, 6:17–19). Inverse DCT module 209 supplies this partially decoded bitstream 116 to decoded bitstream processor 118, which processes (i.e., modifies) bitstream 116. *Id.* at 47–48 (citing Ex. 1005, 6:17–19; Ex. 1002 ¶ 108). Thus, Dr. Rodriguez testifies that one of ordinary skill would have understood that Liu meets the claim limitation:

a person of ordinary skill in the art would have readily understood that the partially decoded bitstream outputted from the inverse DCT module 209, when configured by the output selector 215 operation, would have been modified by the decoded bitstream processor 118 to produce . . . modified partially decoded data (MPDD)[.]

Ex. 1002 ¶ 108, *quoted in* Pet. 48.

Patent Owner disagrees that Liu teaches modifying the output of inverse DCT module 209, although Patent Owner does not challenge that Liu teaches modifying generally. PO Resp. 8–11; *id.* at 9 (conceding that Liu’s processing is “modification of the bitstream”).⁶ Instead, Patent Owner

⁶ Patent Owner also does not renew its pre-institution argument that Liu does not teach blocks of prediction-error pixels. *Compare* PO Resp. 8 (“While Patent Owner does not agree that Liu teaches the required blocks of prediction-error pixels, nonetheless . . .”), *with* Prelim. Resp. 22–23; Reply 6 (“Uniloc’s fails to lodge any real dispute that *Liu* discloses ‘blocks of

asserts that Liu's decoded bitstream processor 118 processes the output of only spatial bitstream output module 213 or inverse quantizer 207. *Id.* at 9 (citing Ex. 1005, 10:38–40, 10:46–65). Patent Owner also faults the Petition because it relies on what one of ordinary skill in the art “would have readily understood” about Liu, allegedly without evidence. *Id.* at 8–9 (citing Pet. 48). And Patent Owner views Liu as not modifying the output of the inverse DCT module 209 because Liu refers to “other instances” where “the modified bitstream 122 is identical to the decoded bitstream 116.” *Id.* at 10 (citing Ex. 1005, 11:3–6). Finally, Patent Owner discounts Petitioner's declarant testimony because it is allegedly identical to the Petition and conclusory. *Id.*

Petitioner responds that Patent Owner's “argument rests on a contorted reading of *Liu*, which contradicts *Liu*'s explicit disclosures and illustrations (e.g., Figure 3).” Reply 8. According to Petitioner, Liu's decoded bitstream processor 118 modifies the output of inverse DCT module 209 because processor 118 modifies the “output of [any] one of the decoding modules.” *Id.* at 8–9 (citing, e.g., Ex. 1005, 2:61–3:17). Petitioner also relies on Liu's teaching of a selective interconnection path that “selectively connects the output of one of the decoding modules to the input of the decoded bitstream processor.” *Id.* at 10 (citing, e.g., Ex. 1005, 2:61–

prediction-error pixels.”); *see generally* Sur-reply (not disputing Reply's characterization); Tr. *passim* (Patent Owner not raising the issue at the hearing). Patent Owner has thus waived this argument. *See NuVasive*, 842 F.3d at 1380–81 (holding that the patent owner waived arguments on an issue that were not raised in its response after institution); Paper 12, 8 (“Patent Owner is cautioned that any arguments not raised in the response may be deemed waived.”).

3:17) (emphasis omitted). And Petitioner argues that Liu does not employ its identity unit as Patent Owner portrays. *Id.* at 9. Instead, Petitioner asserts that Liu uses the identity unit in another embodiment, when no modification to the video signal is desired. *Id.* (citing Ex. 1005, 2:61–3:17, 3:18–37). Lastly, Petitioner disagrees that Dr. Rodriguez’s testimony is conclusory, arguing that it does not follow that if his testimony is “the same or similar” as the Petition that it is “somehow unavailing.” *Id.* at 14.

In the Sur-reply, Patent Owner charges the Reply with relying on “theoretical *possibilities*.” Sur-reply 1. Patent Owner reiterates that the decoded bitstream processor 118 only processes output from Liu’s other modules (207 and 213), not inverse DCT module 209. *Id.* at 2 (citing Ex. 1005, 10:38–40, 10:46–65). For the first time, Patent Owner also argues that Liu cannot select the output of inverse DCT module 209 because it is “deactivated.” *Id.* at 2–3 (citing Ex. 1005, 9:35–52). Even when inverse DCT module 209 is “activated,” Patent Owner contends, its output is not modified due to “the identity operation.” *Id.* at 3–4 (citing Ex. 1005, 11:3–6).

b. Our analysis

After considering the parties’ arguments and evidence, we agree with Petitioner’s contentions, which are supported by Dr. Rodriguez’s testimony. We credit and give significant weight to the testimony of Dr. Rodriguez because his testimony is consistent with the evidence of record.⁷

⁷ Petitioner also argues that Ng (Ex. 1012) confirms the knowledge of the skilled artisan. Pet. 53–54. We find it unnecessary to rely on Ng, so we also do not address Patent Owner’s arguments against Ng. *See* PO. Resp. 11; Tr. 13:21–14:4 (Petitioner confirming that we need not rely on Ng).

We agree with Petitioner that Patent Owner’s “argument rests on a contorted reading of *Liu*.” Reply 8. This is easiest to see in Patent Owner’s assertion that Liu only modifies the output of spatial bitstream output module 213 or inverse quantizer 207. PO Resp. 9. Liu actually teaches that its “layered decoder can stop decoding . . . [at] *any* one of the decoding modules.” Ex. 1005, 7:5–7 (emphasis added), *cited in* Ex. 1002 ¶¶ 75, 76, 87, 88, 97, 108. In that same vein, Liu’s system “can process a compressed input bitstream in *any* state of compression.” *Id.* at 2:55–57 (emphasis added), *cited in* Ex. 1002 ¶ 73. And Liu’s “selective interconnection path selectively connects the output of *one of the decoding modules*”—i.e., any decoding module—“to the input of the decoded bitstream processor.” *Id.* at 3:12–14 (emphasis added), *cited in* Ex. 1002 ¶¶ 78, 92. What is more, Liu’s “blocks of differences” from inverse DCT module 209 “are fed to the output bus 134 for connection to the output selector 215,” which “selects the output of one of the decoding modules” and “feeds this bitstream” to decoded bitstream processor 118. *Id.* at 8:40–49, 9:61–64, *cited in* Ex. 1002 ¶ 108. These disclosures expressly teach that Liu selects the output of inverse DCT module 209 for modification. At the very least, we agree with Dr. Rodriguez that one of ordinary skill in the art would have understood that Liu selects the output of inverse DCT module 209 for modification. *See* Ex. 1002 ¶ 108; *Paulsen*, 30 F.3d at 390 (Prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.”).

Elsewhere, Liu gives examples of selecting modules other than inverse DCT module 209 for output modification. *E.g.*, Ex. 1005, 9:34–52, 10:36–40. But Patent Owner improperly elevates Liu’s examples over Liu’s

plain description of selecting the output of “any” module. *See* PO Resp. 8–11; Ex. 1005 7:5–7, 2:53–59, 2:61–3:17. Not only that, but Patent Owner does not acknowledge that it relies on an example to limit Liu’s teachings. Patent Owner simply quotes: “decoded bitstream processor can [modify] ‘either the conventional video bitstream generated by the spatial bitstream output module 213 or the DCT coefficients generated by the inverse quantizer 207.’” PO Resp. 9 (quoting Ex. 1005, 10:36–40). But Patent Owner’s selective quotation omits important surrounding language, which provides necessary context:

The processing operation performed by the decoded bitstream processor 118 depends on the compression state of the decoded bitstream 116. *For example*, the decoded bitstream processor can perform a picture sharpening operation on *either the conventional video bitstream generated by the spatial bitstream output module 213 or the DCT coefficients generated by the inverse quantizer 207*.

Ex. 1005, 10:34–40 (emphasis added; Patent Owner’s quotation in italics). Thus, Liu merely refers to selecting the modules 213 and 207 in an “example.” *See id.* Yet this example does not negate Liu’s broader teaching of selecting “any one of the decoding modules” for modification—including inverse DCT module 209. *See* Ex. 1005, 7:4–9; *see also id.* at 2:53–59, 3:6–3:17, 9:54–64.

In the Sur-reply, Patent Owner refers to another example where Liu’s output selector 215 selects one module and deactivates inverse DCT module 209:

For example, if the user commands the system to perform spatial filtering . . . , the output selector 215 [will] connect the partially-decoded bitstream from the inverse quantizer [207] to the decoded bitstream processor 118 as the decoded bitstream 116. The decoding control data will also *deactivate* the

decoding modules downstream . . . , i.e., the inverse DCT module 209

Sur-reply 2 (quoting Ex. 1005, 9:35–52 (emphasis omitted and added)).

Patent Owner emphasizes here that “inverse DCT module 209 is **deactivated**,” implying that its output can never be selected. *See id.* at 3.

There are two problems with this argument. First, Patent Owner improperly made this new argument for the first time in the Sur-reply. *See* Tr. 19:2–15 (Patent Owner conceding that it raised this argument for the first time in its Sur-reply). “A sur-reply may only respond to arguments raised in the corresponding reply” 37 C.F.R. § 42.23(b). Patent Owner has not adequately explained why it did not raise this argument in its Response; nor does the Reply address Liu’s “deactivated” disclosure. *See generally* Reply. Thus, we need not consider it.

Second, even considering this argument, we find it unavailing. While Patent Owner quotes Liu’s “example” language this time, Patent Owner again ignores that it is just an example. *See* Sur-reply 2. That is, deactivating inverse DCT module 209 is part and parcel with Liu’s *example* of selecting the output of another module (207). Ex. 1005, 9:34–48 (“*For example*, . . . the output selector 215 [will] connect the partially-decoded bitstream from the *inverse quantizer [207]* to the decoded bitstream processor 118 . . . [and] will also deactivate . . . inverse DCT module 209.” (emphasis added)). When inverse quantizer 207 is selected, it makes sense to deactivate downstream modules like inverse DCT module 209. *See id.* at 9:48–50 (“These decoding modules can be deactivated since they are not required to decode the compressed input bitstream”). But this example does not preclude selecting inverse DCT module 209 under other circumstances. *E.g., id.* at 7:4–9; 2:53–59, 3:6–3:17, 9:54–64.

We also disagree with Patent Owner’s “other instances” argument because it sets up a false dichotomy. *See* PO Resp. 10 (citing Ex. 1005, 11:3–6). Patent Owner asserts that in instances other than when inverse quantizer 207 or spatial bitstream output module 213 are selected, the modified bitstream is “identical” to the decoded bitstream 116. *See id.* If the output is identical, according to Patent Owner, Liu does not disclose modifying the output of inverse DCT module 209. *Id.* Not so. Liu does not say, “output an identical bitstream in instances other than when inverse quantizer 207 or spatial bitstream output module 213 are selected.” Liu merely discloses outputting an identical bitstream when Liu’s *entire apparatus* is configured not to modify the video signal:

[When] the compressed bitstream processing *apparatus 100* is configured to modify the bitstream characteristics of the compressed input bitstream 112 without modifying the video signal . . . , the processing selector 120 configures the decoded bitstream processor 118 as an *identity unit*, and the modified bitstream 122 *is identical* to the decoded bitstream 116.

Ex. 1005, 10:66–11:6 (emphasis added). Nothing in this passage refers to inverse DCT module 209, inverse quantizer 207, or spatial bitstream output module 213. In fact, it mentions no modules at all. It merely describes what happens when something configures the entire apparatus 100 not to modify the video signal. Thus, we agree with Petitioner: Liu does not employ its identity unit as Patent Owner portrays, but rather uses it when no modification to the video signal is desired. Reply 9 (citing Ex. 1005, 2:61–3:17, 3:18–37).

Lastly, we disagree that Dr. Rodriguez’s testimony is conclusory and unsupported. *See* PO Resp. 10. We agree, rather, with Petitioner that Patent Owner “has not identified *where* or *how* Dr. Rodriguez’s testimony is

inconsistent with the record.” Reply 16. And Patent Owner did not cross-examine Dr. Rodriguez or submit rebuttal testimony of its own. In short, we are persuaded that Dr. Rodriguez’s testimony is supported by Liu’s disclosure of modifying the output of inverse DCT module 209. *Compare, e.g.,* Ex. 1002 ¶¶ 108, 110–111, *with* Ex. 1005, 7:4–9, 2:55–57, 8:40–49, 9:61–74. We have reviewed Patent Owner’s contrary arguments and given them due consideration, but they do not sufficiently rebut Petitioner’s persuasive showing and evidence.

c. Summary

For the foregoing reasons, Petitioner has established by a preponderance of the evidence that Liu anticipates claim 1.

Because we determine that claim 1 is unpatentable as anticipated by Liu, we do not reach the Petition’s second ground of unpatentability over Liu and Chitprasert. *See Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. Apr. 30, 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

IV. CONCLUSION

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1	102	Liu	1	
1	103(a)	Liu, Chitprasert ⁸		
Overall Outcome			1	

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claim 1 of the '934 patent is unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

⁸ As noted above, we do not reach this ground.

IPR2020-00447
Patent 6,329,934 B1

PETITIONER:

Naveen Modi
Joseph E. Palys
Quadeer Ahmed
Jason Heidemann
PAUL HASTINGS LLP
naveenmodi@paulhastings.com
josephpalys@paulhastings.com
quadeerahmed@paulhastings.com
jasonheidemann@paulhastings.com

PATENT OWNER:

Ryan Loveless
Brett Mangrum
James Etheridge
Brian Koide
Jeffrey Huang
ETHERIDGE LAW GROUP
ryan@etheridgelaw.com
brett@etheridgelaw.com
jim@etheridgelaw.com
brian@etheridgelaw.com
jeff@etheridgelaw.com