

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS INC.,
Petitioner,

v.

KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY
and ELECTRONICS AND TELECOMMUNICATIONS
RESEARCH INSTITUTE,
Patent Owner.

IPR2019-01071
Patent 9,544,595 B2

Before KRISTEN L. DROESCH, BRIAN J. McNAMARA, and
JOHN A. HUDALLA, *Administrative Patent Judges*.

DROESCH, *Administrative Patent Judge*.

DECISION
Denying Petitioner's Request for Rehearing
37 C.F.R. § 42.71(d)

INTRODUCTION

Petitioner requests rehearing of the Decision Denying Institution of *Inter Partes* Review of claims 1–3 of U.S. Patent No. 9,544,595 B2 (Ex. 1001, “’595 Patent”) (Paper 12, “Decision” or “Dec.”). Paper 13 (“Request for Rehearing,” “Request,” or “Req. Reh’g”). Specifically, Petitioner requests rehearing because, according to Petitioner, the Board misapprehended Petitioner’s positions and supporting evidence that the JCT-VC References disclose the claimed “integrated code block flag information” of claim 1, and the Board incorrectly read limitations into the claims. *See* Req. Reh’g 1–2. For the reasons explained below, Petitioner’s Request for Rehearing is denied.

BRIEF OVERVIEW OF PETITION AND DECISION

When addressing the limitation “an entropy decoder configured to decode integrated code block flag information in an coding unit” (element 1.1 according to Petitioner, *see* Pet. 16, 43), Petitioner makes the following relevant assertions in the Petition:

The JCTVC References disclose the “**skip_flag**” (*i.e.*, **integrated code block flag**) as a flag that “specifies whether the current coding unit shall be skipped or not” based on whether transform coefficients are present in the current coding unit. Ex-1004, §§4.1.10, 4.2.10; Ex-1005, §§4.1.10, 4.2.10; Ex-1002, ¶96. For P and B type slices, **skip_flag** sets the coding mode equal to “MODE_SKIP” (*i.e.*, **integrated code block flag information**). Ex-1004, §§4.1.10, 4.2.10; Ex-1005, §§4.1.10, 4.2.10; Ex-1002, ¶96. When “the prediction unit [*i.e.*, **coding unit**] which current transform unit belongs to is coded [*e.g.*, **decoded**] as “MODE_SKIP”, all values of “LumaLevel” and “ChromaLevel” are set equal to 0 for the current transform unit.” Ex-1004, §5.3; Ex-1005, §5.3; Ex-1002, ¶96.

“LumaLevel” and “ChromaLevel” are coefficients that relate to luminance and chrominance values, respectively. Ex-1004, §§ 5.3, 5.3.1, 5.3.2; Ex-1005, §§ 5.3, 5.3.1, 5.3.2; Ex-1002, ¶96. Thus, when the coding mode is “MODE_SKIP”, all transform coefficients are set to zero for the current transform unit. Ex-1004, §§5.3, 5.3.1, 5.3.2; Ex-1005, §§ 5.3, 5.3.1, 5.3.2; Ex-1002, ¶96. Therefore, a POSITA would have understood the “MODE_SKIP” coding mode to represent whether or not any of the transform coefficients are nonzero and to function as **integrated code block flag information**. Ex-1002, ¶96.

Pet. 44–45. When addressing other limitations of claim 1, Petitioner asserts:

(1) “In the JCTVC References’ syntax, the ‘skip_flag’ (i.e., **integrated code block flag**) is first decoded and used to set (or not set) coding mode to ‘MODE_SKIP’ (i.e., **integrated code block flag information**)” (Pet. 46 (citing Ex. 1004 §§ 4.1.9, 5.2.1, 5.3; Ex. 1005, §§ 4.1.9, 5.2.1, 5.3; Ex. 1002 ¶ 101)); and (2) “The ‘prediction_unit(…)’ process is the process that sets the ‘MODE_SKIP’ coding mode (i.e., **integrated code block flag information**) based on the decoded value of ‘skip_flag’.” (Pet. 58 (citing Ex. 1004 §§ 4.1.9, 4.1.10, 4.1.11; Ex. 1005 §§ 4.1.9, 4.1.10, 4.1.11; Ex. 1002 ¶ 121)).

In the Decision, we determined:

Based on the arguments presented in the Petition, we understand Petitioner to assert that the disclosures of “skip_flag” together with the disclosures of “MODE_SKIP” found in each of A205 and B205 [(the JCT-VC References)] teach the claimed “integrated code block flag information.” . . . More particularly, we understand Petitioner to assert that “skip_flag” teaches the claimed “integrated code block flag,” “MODE_SKIP” teaches the claimed “integrated code block flag information,” and that decoding “skip_flag” (i.e., integrated code block flag) is used to set or not set “MODE_SKIP” (i.e., integrated code block flag information).

Dec. 22 (citing Pet. 44–47, 58–60, 66–68). We further determined that Petitioner did not establish that the JCT-VC References disclose the asserted links between `skip_flag` and `MODE_SKIP`.” *Id.* at 23. More specifically, we determined that “contrary to Petitioner’s assertions that ‘`skip_mode`’ is decoded and used to set ‘`MODE_SKIP`,’ [the JCT-VC References] instead disclose that ‘`MODE_SKIP`’ is set based on ‘`slice_type`’ and ‘`pred_mode`.’” *Id.* at 24 (citing Ex. 1004 § 4.2.10, Table 4-7; Ex. 1005 § 4.2.10, Table 4-11). We concluded that “Petitioner ha[d] not set forth evidence sufficient to demonstrate that the combination of A205 with Chen, and the combination of B205 with Chen, disclose, teach, or suggest ‘integrated code block flag information,’ and ‘an entropy decoder configured to decode integrated code block flag information [element 1.1],’ as recited in claim 1.” *Id.* at 25.

STANDARD OF REVIEW

The applicable standard for a request for rehearing is set forth in 37 C.F.R. § 42.71(d), which provides that a request for rehearing “must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply.” The party challenging a decision bears the burden of showing the decision should be modified. *See id.* “When rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” 37 C.F.R. § 42.71(c).

ANALYSIS

“Integrated Code Block Flag Information”

Petitioner asserts that the Board misapprehended Petitioner’s position that the disclosure of MODE_SKIP in the JCT-VC References disclose the claimed “integrated code block flag information.” See Req. Reh’g 1–2, 4–7. According to Petitioner, “the Petition explicitly identified MODE_SKIP alone as the claimed ‘integrated code black flag information.’” *Id.* at 2; see *id.* at 4–6. In support of its contentions, Petitioner reproduces the following Petition argument:

Therefore, a POSITA would have understood the “MODE_SKIP” coding mode to represent whether or not any of the transform coefficients are nonzero and to function as **integrated code block flag information**.

Req. Reh’g 5; Pet. 45. Petitioner contends the Petition and supporting declaration clearly mapped the following distinct features from the JCT-VC References to the limitations of claim 1: (1) “MODE_SKIP” as the claimed “integrated code block flag **information**” (citing Pet. 45, 58; Ex. 1002 ¶¶ 101, 121–122); (2) “split_transform_unit_flag” as the claimed “split information flag” (citing Pet. 47, 57; Ex. 1003 ¶¶ 103, 121); and (3) “skip_flag” as the claimed “integrated code block flag” (citing Pet. 44, 46; Ex. 1002 ¶¶ 96, 101). See Req. Reh’g 5. Petitioner also asserts that it used consistent color coding and parentheses throughout the Petition to emphasize the distinction between these claim limitations and features of the JCT-VC References. See *id.* In support of its argument, Petitioner reproduces the following assertion from the Petition:

Thus, a POSITA would have understood the JCTVC References to disclose that the option of decoding the

“split_transform_unit_flag” (i.e., *split information flag*) occurs after the decoding and setting of the “MODE_SKIP” coding mode (i.e., *after decoding the integrated code block flag information*).

Req. Reh’g 5–6; Pet. 58.

We are not persuaded that we misapprehended or overlooked arguments in the Petition that “MODE_SKIP” alone teaches the claimed “integrated code block flag information.” Specifically, we are not persuaded by Petitioner’s arguments regarding the alleged clarity of the Petition with respect to the “integrated code block flag information,” “split information flag,” and “integrated code block flag” limitations. In its Request, Petitioner highlights certain Petition arguments in support of its position, yet overlooks other Petition arguments that conflict with its new position. For example, the Petition asserts in numerous instances that “skip_flag” (i.e., integrated code block flag) is decoded (see Pet. 46, 73, 75) and used to set the coding mode equal to “MODE_SKIP” (i.e., integrated code block flag information)” (see Pet. 44, 46, 73–74, 75–76) or that the coding mode is set equal to “MODE_SKIP” in the prediction unit based on the decoded values of “skip_flag” (Pet. 58, 79). The prediction unit syntax disclosed in the JCT-VC References includes “skip_flag.” Ex. 1004, Table 4.1.10. As highlighted in the Decision, “MODE_SKIP” does not appear in the prediction unit syntax disclosed in section 4.1.10 [of the JCT-VC References], and the description of the semantic of “skip_flag” in section 4.2.10 is silent regarding “MODE_SKIP.” Dec. 23–24 (citing Ex. 1004 §§ 4.1.10, 4.2.10; Ex. 1005 §§ 4.1.10, 4.2.10). Instead, the JCT-VC References disclose that “MODE_SKIP” is set based on “slice_type” and “pred_mode.” See Dec. 24 (citing Ex. 1004 § 4.2.10, Table 4-7; Ex. 1005 § 4.2.10, Table 4-

11). In other words, the disclosures of the JCT-VC References do not support Petitioner's asserted connections between "skip_flag" and "MODE_SKIP."

These Petition arguments refute Petitioner's alleged simplified mapping set forth in the Request for Rehearing. *Compare* Req. Reh'g 1–2, 4–6, with Pet. 44, 46, 73–74, 75–76, 58, 79. Instead, Petitioner actually asserted (1) that "skip_flag" together with the disclosures of "MODE_SKIP" teach the claimed "integrated code block flag information," and, more particularly "that 'skip_flag' teaches the claimed 'integrated code block flag'; (2) that 'MODE_SKIP' teaches the claimed 'integrated code block flag information'; and (3) that decoding 'skip_flag' (i.e., integrated code block flag) is used to set or not set 'MODE_SKIP' (i.e., integrated code block flag information)." Dec. 22.

Petitioner acknowledges that the Petition discloses "skip_flag" in conjunction with MODE_SKIP, and for the first time asserts that "this was done to provide greater context for the prediction unit process in the *JCT-VC References*." Req. Reh'g 6. Petitioner reproduces the following Petition arguments:

The "prediction_unit(...)" process is the process that sets the "MODE_SKIP" coding mode (i.e., **integrated code block flag information**) based on the decoded value of "skip_flag". Thus, a POSITA would have understood the JCTVC References to disclose that the option of decoding the "split_transform_unit_flag" (i.e., **split information flag**) occurs after the decoding and setting of the "MODE_SKIP" coding mode (i.e., **after decoding the integrated code block flag information**).

Req. Reh'g 6; Pet. 58. Petitioner contends "the full context (including parentheticals) in th[e reproduced sentences] make clear that MODE_SKIP

alone was identified by the Petition as the ‘integrated code block flag **information.**’” Req. Reh’g 6. According to Petitioner, “[t]he Petition’s statement that MODE_SKIP is set ‘based on’ the value of skip_flag was made in the course of explaining how the prediction_unit process of the *JCT-VC References* causes the decoder to receive MODE_SKIP.” *Id.* (citing Pet. 23–25, 57–59; Ex. 1002 ¶¶ 120–22). According to Petitioner, the significance of this statement was merely that “evaluating skip_flag is the first step of the prediction_unit process that determines whether skipping may potentially occur.” *Id.* at 5–6 (citing Pet. 23–25, 57–59).

We are not persuaded by Petitioner’s arguments. Petitioner does not direct us to arguments in the Petition explaining that the purpose of the discussion of “skip_flag” together with “MODE_SKIP” was only to provide explanation how the prediction unit process causes the decoder to receive MODE_SKIP. A request for rehearing is not an opportunity to present new and/or improved arguments and explanations to address the application of the prior art to the claim limitations. As addressed above, the Petition asserts several times that “skip_flag” (i.e., integrated code block flag) is decoded (*see* Pet. 46, 73, 75) and is used to set the coding mode equal to “MODE_SKIP” (i.e., integrated code block flag information)” (*see* Pet. 44, 46, 73–74, 75–76), or that the coding mode is set equal to “MODE SKIP in the prediction unit based on the decoded value of “skip_flag” (Pet. 58, 79). And as pointed out in the Decision, “MODE_SKIP” does not appear in the prediction unit syntax disclosed in section 4.1.10, and the description of the semantic of “skip_flag” in section 4.2.10 is silent regarding “MODE_SKIP.” Dec. 23–24 (citing Ex. 1004 §§ 4.1.10, 4.2.10; Ex. 1005 §§ 4.1.10, 4.2.10). Instead, as we noted above, the JCT-VC References disclose that

“MODE_SKIP” is set based on “slice_type” and “pred_mode.” See Dec. 24 (citing Ex. 1004 § 4.2.10, Table 4-7; Ex. 1005 § 4.2.10, Table 4-11). In other words, the disclosures of the JCT-VC References do not support Petitioner’s asserted connections between “skip_flag” and “MODE_SKIP.”

Moreover, Petitioner’s arguments focus on the part of our Decision addressing “integrated code block flag information,” yet overlooks that our disposition also was based on the insufficiency of the record evidence to demonstrate that the prior art combinations disclose, teach, or suggest “an entropy decoder configured to decode integrated code block flag information,” (element 1.1 of claim 1). See Dec. 25 (“Petitioner has not set forth evidence sufficient to demonstrate that the combination of A205 with Chen, and the combination of B205 with Chen, disclose, teach, or suggest “integrated code block flag information,” *and* “an entropy decoder configured to decode integrated code block flag information.” (emphasis added)). For all of the foregoing reasons, we are not persuaded that, in rendering the Decision, that we misapprehended or overlooked arguments presented in the Petition.

Element 1.6 of Claim 1

Petitioner contends that the Decision incorrectly reads into Element 1.6 a requirement that the integrated code block flag information is set based on the claimed integrated code block flag (i.e., skip_flag). See Req. Reh’g 7 (reproducing Dec. 23). Petitioner asserts that none of the elements of claim 1 requires how the integrated code block flag information is set or determined as implied by the Decision. Rather, Petitioner contends that element 1.6 only requires that the integrated code block flag information is decoded. See *id.* at 7–8 (quoting Pet. 16–17). Petitioner also contends

that our Decision acknowledges how the JCT-VC references teach element 1.6 under its interpretation of that element, namely: (1) that MODE_SKIP (*i.e.*, the claimed “integrated code block flag **information**”) is only received (*i.e.*, decoded) when the transform unit coefficients are absent and (2) that decoding split_transform_unit_flag (*i.e.*, the claimed “split information flag”) is skipped when the decoder receives MODE_SKIP.” Req. Reh’g 7; *see id.* at 2, 4.

Petitioner’s arguments are unpersuasive. In our Decision, we did not address element 1.6 of claim 1—“wherein the entropy decoder, after decoding the integrated code block flag information, does not decode the split information flag when the transform coefficients in the transform unit are absent.” *See* Dec. 20–25. Instead, we addressed element 1.1 of claim 1—“an entropy decoder configured to decode integrated code block flag information in a coding unit.” *See id.* at 20 (citing Pet. 43–46), 22–23 (citing Pet. 44–45), 25.

Moreover, Petitioner’s arguments addressing element 1.6 newly equate “decoding the integrated code block flag information” with *receiving* integrated code block flag information. *See* Req. Reh’g 4, 7 (“MODE_SKIP (*i.e.*, the claimed ‘integrated code block flag **information**’) is only received (*i.e.*, decoded) . . . when the decoder receives MODE_SKIP.”); *see also id.* at 6 (“The Petition’s statement that MODE_SKIP is set ‘based on’ the value of skip_flag was made in the course of explaining how the prediction_unit process of the *JCT-VC References* causes the decoder to receive MODE_SKIP.”). Petitioner does not direct us to arguments in the Petition that equate “decoding integrated code block flag information” with receiving integrated code block flag information. To the contrary, and as pointed

earlier, the Petition asserts in numerous instances that “skip_flag” (i.e., integrated code block flag) is decoded (see Pet. 46, 73, 75) and used to set the coding mode equal to “MODE_SKIP” (i.e., integrated code block flag information)” (see Pet. 44, 46, 73–74, 75–76) or that the coding mode is set equal to “MODE SKIP in the prediction unit based on the decoded values of “skip_flag” (Pet. 58, 79).

To the extent that Petitioner’s arguments directed to element 1.6 apply equally to element 1.1 of claim 1 (the claim element addressed in the Decision (see Dec. 20–25)) and, in accordance with Petitioner’s new position that “MODE_SKIP” alone discloses “integrated code block flag information,” we are not persuaded that we misapprehended or overlooked arguments presented in the Petition. We note that the Request for Rehearing does not direct us to Petition arguments that the JCT-VC References disclose, teach, or suggest an entropy decoder configured to decode MODE_SKIP.

In further addressing element 1.6 of claim 1, Petitioner asserts that the Petition did present sufficient evidence with respect to element 1.6. See Req. Reh’g 8. Petitioner asserts we misapprehended or overlooked evidence regarding the prediction_unit process showing how the JCT-VC References disclose that the “skip_flag” is used to set the code mode to MODE_SKIP. See *id.* at 9. In support of its arguments, Petitioner reproduces the following portion of the Decision summarizing the disclosures of the JCT-VC References.

“[S]lice_type” specifies the coding type of the slice (e.g., P slice, B slice, I slice) [...] If the coding type of the current slice is not “I” (i.e., “if(slice_type != I)”), meaning the coding type is either “P” or “B,” then a “skip_flag” is decoded from

the bitstream. If skip_flag is equal to 1, no more syntax elements except mvp_idx are parsed after skip_flag.” Ex-1004, §§4.1.10, 4.2.10; Ex-1005, §§4.1.10, 4.2.10. *These syntax elements that are not parsed include “pred_mode,”* which specifies the prediction mode of the current prediction unit. Ex-1004, §§4.1.10, 4.2.10; Ex-1005, §§4.1.10, 4.2.10. *“When pred_mode is not present [e.g., not parsed], PredMode shall be inferred to be ... MODE_SKIP when slice_type is equal to P slice or B slice.”* Ex-1004, §§4.1.10, 4.2.10; Ex-1005, §§4.1.10, 4.2.10.

Req. Reh’g 9; Pet. 24. As such, Petitioner contends that the Decision misapprehends or overlooks evidence on the connection between skip_flag, slice_type, and “pred_mode” in the prediction unit. See Req. Reh’g 9–10.

We are not persuaded by Petitioner’s arguments. As explained above, the Decision addressed element 1.1 of claim 1, not element 1.6 of claim 1. See Dec. 20–25. To the extent Petitioner’s arguments apply to element 1.1 of claim 1 (the claim limitation addressed in the Decision (see Dec. 20–25)), we are not persuaded that the Decision misapprehends or overlooks arguments presented in the Petition. Petitioner cites one passage (see Pet. 24) of a ten-page section of the Petition providing summary characterizations of the disclosures of the JCT-VC References. See Pet. 18–28. This portion does not include arguments applying the teachings of the JCT-VC References to the limitations of claim 1. We decline Petitioner’s invitation to assemble arguments from the Petition’s summary characterizations and note that Petitioner could have been, but did not, present such arguments in the Petition.

For all of the forgoing reasons, we are not persuaded that, in rendering the Decision, we misapprehended or overlooked arguments presented in the Petition.

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DECISION ON REHEARING

Petitioner's request for rehearing is *denied*.

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