

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TIKTOK INC.,
Petitioner,

v.

ADVANCED CODING TECHNOLOGIES LLC,
Patent Owner.

IPR2022-01546
Patent 8,615,154 B2

Before BART A. GERSTENBLITH, NATHAN A. ENGELS, and
RUSSELL E. CASS, *Administrative Patent Judges*.

GERSTENBLITH, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

TikTok Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting institution of *inter partes* review of claims 1–7 (“the Challenged Claims”) of U.S. Patent No. 8,615,154 B2 (Ex. 1001, “the ’154 patent”). Advanced Coding Technologies LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

An *inter partes* review may be instituted only if “the information presented in the petition . . . and any [preliminary] response . . . 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) (2018). For the reasons given below, on this record, Petitioner has not established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we deny the Petition and do not institute an *inter partes* review of the ’154 patent.

B. *Related Proceedings*

The parties identify *Advance Coding Technologies LLC v. ByteDance, Ltd.*, No. 2:22-cv-00129-JRG (E.D. Tex.), as a related matter. Paper 4 (Patent Owner’s Mandatory Notices), 2; *see* Pet. 88.

C. *Real Parties in Interest*

Petitioner identifies ByteDance Ltd., ByteDance Inc., and TikTok Inc. as real parties in interest. Pet. 87–88. Patent Owner identifies Advance Coding Technologies LLC as a real party in interest. Paper 4, 2.

D. The Asserted Grounds of Unpatentability and Declaration Evidence

Petitioner challenges the patentability of claims 1–7 of the ’154 patent on the following grounds:

Claims Challenged	35 U.S.C. § ¹	References
1, 4, 6	103(a)	Lindroos, ² Sung ³
2, 3, 5, 7	103(a)	Lindroos, Sung, Mizobuchi ⁴
1–7	103(a)	Baek, ⁵ Oshima ⁶

Pet. 1. Petitioner supports its challenge with a Declaration of David B. Lett (Ex. 1003).

E. The ’154 Patent

The ’154 patent is directed to “a video-audio processing apparatus and a video-audio processing method for synchronizing video data and audio data acquired at different times.” Ex. 1001, 1:17–19. In particular, the ’154 patent is concerned with a video and audio processing apparatus and method that are “capable of easily synchronizing plural video images with each other” including video images “recorded under an environment where

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’154 patent was filed on December 7, 2011, before the effective date of the AIA, we apply the pre-AIA version of § 103 here.

² U.S. Patent Application Publication No. 2008/0145032 A1, published June 19, 2008 (Ex. 1004, “Lindroos”).

³ U.S. Patent No. 5,594,660, issued Jan. 14, 1997 (Ex. 1005, “Sung”).

⁴ U.S. Patent Application Publication No. 2007/0297509 A1, published Dec. 27, 2007 (Ex. 1006, “Mizobuchi”).

⁵ U.S. Patent Application Publication No. 2009/0015653 A1, published Jan. 15, 2009 (Ex. 1007, “Baek”).

⁶ U.S. Patent Application Publication No. 2003/0108341 A1, published June 12, 2003 (Ex. 1008, “Oshima”).

noise . . . exists or is generated” while decreasing the user’s need “to perform any troublesome timing adjustment operation or the like.” *Id.* at 2:1–11.

Figure 1 of the ’154 patent is reproduced below.

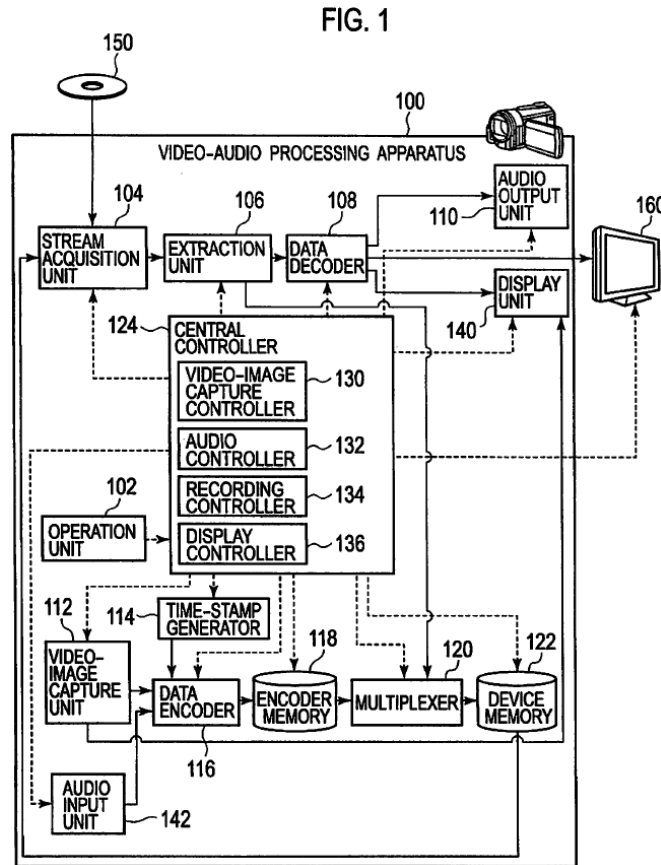


Figure 1 “is a functional block diagram illustrating a general configuration of a video-audio processing apparatus.” Ex. 1001, 2:43–45, 4:29–31.

Video-audio processing apparatus 100 includes “operation unit 102, stream acquisition unit 104, extraction unit 106, data decoder 108, audio output unit 110, video-image capture unit 112, time-stamp generator 114, data encoder 116, encoder memory 118, multiplexer 120, device memory 122, central controller 124, display unit 140, and audio input unit 142.” *Id.* at 4:32–37. “Extraction unit 106 extracts encoded audio data and encoded

video data from the stream acquired by stream acquisition unit 104.” *Id.* at 5:1–3. “Data decoder 108 decodes the encoded audio data extracted by extraction unit 106, and thereby creates audio data.” *Id.* at 5:9–11.

Similarly, “data decoder 108 decodes the encoded video data, and thereby creates video data.” *Id.* at 5:11–12.

Video-audio processing apparatus 100 has three modes: “a normal video capture mode,” “a practice video capture mode,” and “a reproduction mode.” Ex. 1001, 3:34–43. A user can select any one of these three modes by input to an operation unit. *Id.* at 3:43–46. Each of these modes produces encoded and multiplexed video and audio data to create a stream. *Id.* at 3:34–4:24.

F. Illustrative Claim

Claims 1, 4, and 6 are the independent claims challenged in this proceeding. Claim 1 is illustrative of the claimed subject matter and is reproduced below with Petitioner’s bracketing added for reference (*see* Pet. v):

1. 1[p] A video-audio processing apparatus,
comprising:
 - 1[a] an audio output unit that outputs sound based
on audio data that includes a time stamp;
 - 1[b] an audio controller that controls the audio
output unit;
 - 1[c] a video-image capture unit that captures a
video image of an object to create video data;
 - 1[d] a data encoder that encodes the video data to
create encoded video data;
 - 1[e] a data decoder that decodes the encoded video
data to create video data; and

1[f] a display controller that causes display of a video image based on the video data, [1g] wherein

the encoded video data includes a time stamp that is different from the time stamp of the audio data, [1h] wherein

the audio controller causes the audio output unit to output the sound when the video-image capture unit starts to capture a video image, [1i] wherein

when the display controller causes display of the video image decoded from the encoded video data, the audio controller causes the audio output unit to output the sound in synchronization of the time stamp of the audio data with the time stamp of the encoded video data.

Ex. 1001, 14:23–44.

G. Level of Ordinary Skill in the Art

Petitioner, supported by Dr. Lett’s testimony, proposes that a person of ordinary skill in the art at the time of the invention “would have been a person with a working knowledge of digital video and audio technologies.” Pet. 4 (citing Ex. 1003 ¶ 22). Petitioner contends that a person of ordinary skill in the art

would have had a Bachelor of Science, a Bachelor of Applied Science, or a Bachelor of Engineering degree in an academic discipline emphasizing the design of electrical, computer, or software technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, including but not limited to digital video and audio technologies.

Id. Alternatively, Petitioner contends, “the person could have also had a Master of Science, Master of Applied Science, or Master of Engineering degree in a relevant academic discipline with less than a year of related work experience in the same discipline.” *Id.* at 5 (citing Ex. 1003 ¶ 22).

Patent Owner states that “[f]or the purpose of this Preliminary Response only, Patent Owner utilizes Petitioner’s proposed level of skill in the art.” Prelim. Resp. 13.

At this stage of the proceeding and on the present record, we find that Petitioner’s uncontested level of ordinary skill in the art is consistent with the level of ordinary skill in the art reflected by the ’154 patent and the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). Therefore, we adopt Petitioner’s level of ordinary skill in the art in our consideration of the issues presently before us.

II. CLAIM CONSTRUCTION

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2022). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc). In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17.

Additionally, only terms that are in controversy need to be construed, and these need be construed only to the extent necessary to resolve the controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those 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)).

Petitioner and Patent Owner agree that no claim terms require an express construction at this stage of the proceeding. Pet. 14; Prelim. Resp. 13. Accordingly, we need not construe any claim terms expressly because none are in dispute.⁷ See *Vivid Techs.*, 200 F.3d at 803.

III. ANALYSIS

A. Legal Standards – Obviousness

The U.S. Supreme Court set forth the framework for applying the statutory language of 35 U.S.C. § 103 in *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966):

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc.,

⁷ Although Patent Owner contends that no claim terms require construction, in response to Petitioner’s challenge based on *Lindroos and Sung*, Patent Owner argues that “[t]he prosecution history clearly shows that the presentation time stamps inherent in the MPEG data format do not meet the claim limitations.” See, e.g., Prelim. Resp. 16. Despite raising this argument in several instances in its Preliminary Response, Patent Owner does not propose a specific construction for any claim term that might be impacted by Patent Owner’s argument or assert that the arguments made during prosecution of the ’154 patent should be construed as a prosecution history disclaimer. See generally Prelim. Resp. On the record before us and for the reasons explained herein, we need not reach this issue to address the parties’ disputes before us and we do not express an opinion on whether we agree with Patent Owner’s arguments based on the prosecution history.

might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

The Supreme Court explained in *KSR International Co. v. Teleflex Inc.* that

[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (alteration in original))).

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted).

“[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1154, 1068–69 (Fed. Cir. 2012)).

B. Ground 1A: Obviousness over Lindroos and Sung

Petitioner asserts the combination of Lindroos and Sung would have rendered the subject matter of claims 1, 4, and 6 obvious to one of ordinary skill in the art at the time of the invention. Pet. 5–7 (describing Lindroos

and Sung), 8–11 (discussing motivation to combine and reasonable expectation of success), 12–28 (discussing the application of the art to the claims).

1. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is discussed above. *See supra* § I.G.

2. Scope and Content of the Prior Art

a. Lindroos

Lindroos discloses “a method and system for routing audio for recordation with video.” Ex. 1004 ¶ 1. The method and system allow a user to record audio from multiple sources, e.g., another application, at the time the video is being captured. *Id.* at code (57).

Lindroos’ Figure 1 is reproduced below.

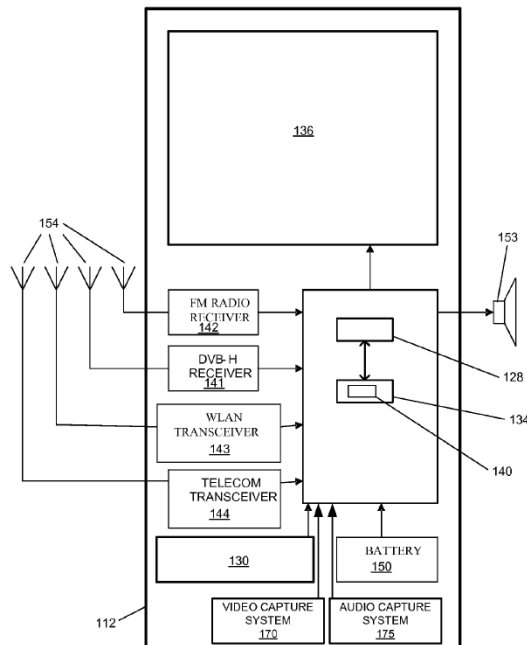


FIG. 1

Figure 1 illustrates a block diagram of a mobile terminal. Ex. 1004 ¶¶ 8, 14. Lindroos describes that mobile terminal 112 includes processor 128, which

is connected to “user interface 130, memory 134 and/or other storage, and display 136.” *Id.* ¶ 14. Mobile terminal 112 may include “various multimedia capture systems such as video/image capture system 170 and audio capture system 175.” *Id.* ¶ 17. A user can capture video images “and route audio from other sources into the video recording.” *Id.* ¶ 4. Audio content either can be recorded during the capture of the video images or “routed from other applications running on the same video capture device or on a different device.” *Id.* In response to a user commanding the mobile terminal to start recording a video image using the video capture application, the application may ask the user whether to add corresponding audio to the captured video. *Id.* ¶¶ 18–19, Fig. 2. Based on user preference, the application may begin capturing the audio. *Id.* ¶ 19. The application “may display an audio progression bar during the capturing of the audio and video.” *Id.* The progression bar “may indicate a variety of audio information such as audio length, elapsed time and content size.” *Id.* The captured audio is then “encoded and stored along with the video recording in one or more multimedia formats . . . includ[ing] Motion Picture Experts Group (MPEG) format, QuickTime formats and the like.” *Id.*

b. Sung

Sung discloses “[a] multimedia system including an audio/video decoder/decompresser for decoding/decompressing a compressed encoded audio/video data stream to generate video images for display and audio signals for audible reproduction.” Ex. 1005, code (57). The system “provides synchronization between audio playback and the video display . . . [and] is particularly suited for the Motion Picture Expert Group’s (MPEG I+II) data compression and decompression standards.” *Id.* at 1:10–

14. The synchronization takes place by encoding/compressing “audio sounds and video images into a[n] encoded/compressed bit stream which contains time information, encoded/compressed packets of video data, and encoded/compressed packets of audio data.” *Id.* at 3:56–60.

Sung’s Figure 3A is reproduced below.

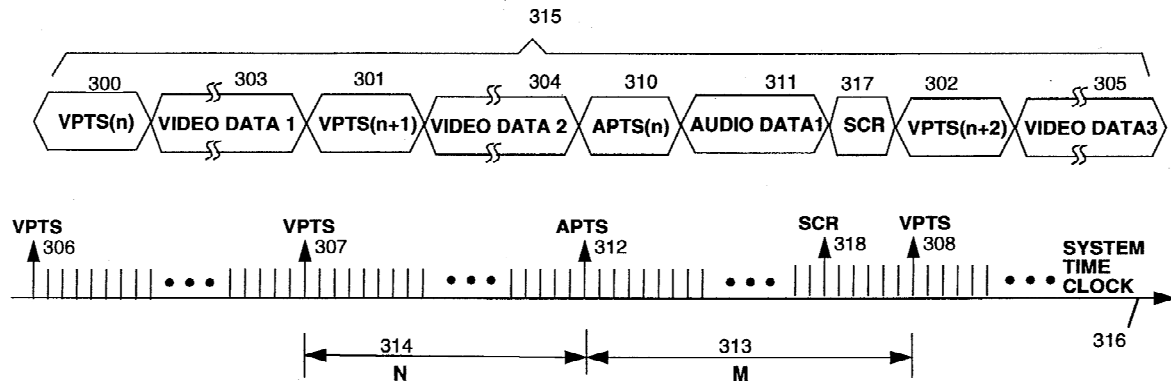


FIG. 3A

Figure 3A illustrates a “simplified waveform diagram and system timing for [an] MPEG data stream.” Ex. 1005, 4:61–62. In particular, an MPEG data stream includes “interspersed compressed video and/or audio data” with “timing information as Video Presentation Time Stamp (VPTS)” and “Audio Presentation Time Stamp (APTS).” *Id.* at 1:30–36. A video data packet in an MPEG data stream is preceded by a VPTS, whereas an audio data packet is preceded by an APTS. *Id.* at 2:14–19.

3. *Differences Between the Prior Art and the Claims;
Motivation to Modify*

Explaining the proposed combination, Petitioner contends that “[w]hile Lindroos expressly provides that the ‘captured audio may then be encoded and stored along with the video recording in one or more multimedia formats’ such as ‘Motion Picture Experts Group (MPEG) format,’ Lindroos lacks detail regarding the MPEG encoding of the audio

and video recording.” Pet. 8 (citing Ex. 1004 ¶ 19; Ex. 1003 ¶ 28).

Petitioner asserts that one of ordinary skill in the art “would have found it obvious to complement Lindroos with Sung’s disclosure of encoding audio sounds and video images into an encoded MPEG data stream that includes time stamps.” *Id.* (citing Ex. 1005, 1:31–33, 2:13–27, Fig. 3A; Ex. 1003 ¶ 28). Additionally, Petitioner contends that one of ordinary skill in the art “would have also found it obvious to incorporate, in Lindroos’ terminal, decoding of the MPEG data stream and synchronizing playback of the audio sounds and video images using the time stamps, as taught by Sung.” *Id.*

In the discussion below, we focus on element 1[a] of claim 1 as we find it dispositive of the issues presented in this ground.

a. Claim 1 – Element 1[a]

Element 1[a] recites “an audio output unit that outputs sound based on audio data that includes a time stamp.” Ex. 1001, 14:24–25. In addressing “an audio output unit that outputs sound,” Petitioner contends that Lindroos’ terminal includes an audio playback application, a speaker, and an audio capture system, which may include a playback device. Pet. 13. According to Petitioner, Lindroos’ audio playback application “‘output[s] a variety of audio content’ and outputs ‘audio in the background while capture application . . . is recording video.’” *Id.* at 14 (alterations in original) (quoting Ex. 1004 ¶ 21) (citing Ex. 1004, Fig. 3A). Petitioner asserts that, based on Lindroos’ disclosure, one of ordinary skill in the art “would have found it obvious that the speaker 153 outputs sound based on audio data outputted from the playback device of the audio capture system 175 or from the audio playback application.” *Id.* (citing Ex. 1003 ¶ 34).

In addressing whether the output sound is “based on audio data that includes a time stamp,” Petitioner contends that “Lindroos-Sung renders obvious that the audio data includes a time stamp.” Pet. 15 (citing Ex. 1003 ¶ 35). Petitioner points to Figure 5A of Lindroos, which shows “‘an audio progress bar [530] . . . displayed on a user interface of a video capturing application[,]’ [which] ‘indicates duration 535 of the corresponding audio content, current position 540 in the audio content and elapsed playback time 545.’” *Id.* (first alteration in original) (quoting Ex. 1004 ¶ 24) (citing Ex. 1004 ¶¶ 6, 27, Fig. 5A). Petitioner then asserts that “[i]t was well known and would have been obvious to a [person of ordinary skill in the art] for elapsed playback time to be indicated by time stamps included in the audio content.” *Id.* at 15–16 (citing Ex. 1003 ¶ 35 (citing Ex. 1010, 93⁸; Ex. 1011, 5:24–6:2⁹; Ex. 1012 ¶ 47¹⁰; Ex. 1013 ¶ 113¹¹)).

In the Preliminary Response, Patent Owner contests Petitioner’s analysis and evidence directed to the claimed “time stamp” element. Prelim. Resp. 13–15. Patent Owner contends that “Petitioner and its expert fail to identify any proof of a time stamp in the audio of Lindroos.” *Id.* at 14. Patent Owner asserts, “[t]hat Lindroos’ display shows elapsed playback time does not demonstrate that the audio includes a time stamp. Petitioner conflates a time stamp in the audio data, which indicates a ‘time point,’ with

⁸ U.S. Patent Application Publication No. 2011/0246908 A1, published Oct. 6, 2011.

⁹ International Publication No. WO 99/48296, published Sept. 23, 1999.

¹⁰ U.S. Patent Application Publication No. 2012/0071238 A1, published Mar. 22, 2012.

¹¹ U.S. Patent Application Publication No. 2008/0319744 A1, published Dec. 25, 2008.

elapsed playback time itself.” *Id.* (citing Ex. 1001, 9:22–25). Patent Owner contends that “[e]lapsed playback time is simply the time since the start of audio playback. The progress bar is based on total duration of the audio file divided by elapsed time.” *Id.*

Additionally, Patent Owner asserts that “[n]o time stamp is necessary to show elapsed time or total time for an audio file, and neither Petitioner nor its expert show otherwise.” Prelim. Resp. 14. Rather, Patent Owner contends that “[a]ll the alleged corroborating publications referenced by Petitioner’s expert (Ex. 1003, ¶ 35) fail to mention a progress bar, and state that *time stamps utilize elapsed time* to mark a location in audio/video data, *not that elapsed time utilizes time stamps.*”¹² Prelim. Resp. 14.

¹² Patent Owner also contends that the Petition and Mr. Lett’s Declaration are substantively identical and that Mr. Lett “does not provide any independent analysis aside from copying the attorney arguments in the Petition and does not disclose the underlying facts or data upon which his opinions are based,” and, therefore, “his opinion should be entitled to no weight.” Prelim. Resp. 24. First, Mr. Lett’s Declaration constitutes evidence cited to and relied on in the Petition. Thus, to the extent there is repetition, it is more reasonable to infer that the Petition repeats Mr. Lett’s testimony (not the other way around). Second, that a petition repeats the analysis of an expert declarant is not a reason, in and of itself, to give that expert’s opinion little to no weight. Rather, the critical inquiries are whether the declaration testimony “is conclusory and unsupported” and whether it “disclose[s] the underlying facts or data on which the opinion is based.” *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (PTAB Aug. 24, 2022) (precedential) (quoting 37 C.F.R. § 42.65(a)). Additionally, a similar important inquiry, as discussed further herein, is whether the declaration testimony supports the arguments made in the Petition. If these conditions are satisfied, we do not give little to no weight to declaration testimony that is repeated in a petition, just as we do not give little to no weight to teachings of the prior art that are repeated in a petition.

On the present record before us, Petitioner has not shown that Lindroos discloses, expressly or inherently, that its audio data includes a time stamp and also has not shown that including a time stamp in Lindroos' audio data would have been obvious. First, Petitioner does not allege that Lindroos expressly discloses that its audio data includes a time stamp. *See, e.g.*, Pet. 15–16. And, we do not find that it does.

Second, although Petitioner does not allege that Lindroos *inherently* discloses a time stamp in its audio data, Petitioner's argument based on what would have been "well known" to one of ordinary skill in the art, could be interpreted as raising this position. *See* Pet. 15–16. Thus, we address this issue for completeness. On this point, and on the present record, Petitioner has not established that Lindroos inherently discloses a time stamp in its audio data based on the inclusion of an audio progress bar. In particular, we agree with Patent Owner that the evidence relied on by Petitioner and Mr. Lett do not establish that an audio progress bar necessarily must be based on time stamps. *See Cont'l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991) ("Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."). Rather, the cited evidence supports the finding that time stamps can indicate elapsed time, not that elapsed time indicates or necessarily demonstrates the inclusion of time stamps. Mr. Lett relies on the following quotations from Exhibits 1010–1013 as supporting his opinion:

- "video frames of the video content may have time stamps which indicate the elapsed time since the start of the content" (Ex. 1010 ¶ 93);

- “[t]ime Stamp 207 may therefore specify an elapsed time from commencement of rendering” (Ex. 1011, 5:24–6:2);
- “[t]he audio-video clip includes time stamps that indicate elapsed times within the clip” (Ex. 1012 ¶ 47);
- “the time code in the corresponding recording . . . may show the elapsed time of the recording” (Ex. 1013 ¶ 113).

Ex. 1003 ¶ 35.¹³ As reflected in the quotations above, none indicate that elapsed time indicates or necessarily demonstrates the inclusion of time stamps. Therefore, on the present record, we find that the evidence on which Petitioner relies does not establish that Lindroos’ progress bar showing elapsed time necessarily means that Lindroos’ audio data includes a time stamp.

Third, as noted above, Petitioner also argues that it would have been obvious to one of ordinary skill in the art that elapsed playback time would be indicated by time stamps included in the audio content. Pet. 15–16. But, on this aspect of Petitioner’s contention, neither Petitioner nor Mr. Lett provides any reason why one of ordinary skill in the art would have found it obvious to include a time stamp in Lindroos’ audio data. *Id.*; Ex. 1003 ¶ 35. As reflected in our discussion above, Mr. Lett’s testimony regarding Exhibits 1010–1013 is unsupported by the references cited. Thus, Petitioner’s assertion that this limitation was “well known” and “would have been obvious” to one of ordinary skill in the art is not supported on the record before us. Accordingly, Petitioner fails to demonstrate on the present

¹³ Mr. Lett states that he “refer[s] to these other publications . . . merely for purposes of corroborating this common background knowledge recognizable to a [person of ordinary skill in the art] at the time.” Ex. 1003 ¶ 35.

record that it was “well known and would have been obvious” “for elapsed playback time to be indicated by time stamps included in the audio content.” Pet. 15–16 (citations omitted).¹⁴

For the reasons explained above, on the present record we find that Petitioner has not established that the combination of Lindroos and Sung satisfies element 1[a].

b. Claims 4 and 6

Independent claim 4 is directed to “[a] video-audio processing method, comprising: outputting sound based on audio data with a time stamp.” Ex. 1001, 15:5–6; *see* Pet. vi (element 4[a]). Independent claim 6 is directed to “[a] non-transitory computer readable medium storing computer program code which, when executed by a computer, causes the computer to perform the functions of: outputting sound based on audio data with a time stamp.” Ex. 1001, 16:1–4; *see* Pet. vii (element 6[a]). In addressing these similar limitations of claims 4 and 6, Petitioner relies on the argument and evidence presented in its challenge to claim element 1[a]. *See* Pet. 27 (citing, *inter alia*, Ground 1A, 1[a] when addressing element 4[a]), 28 (citing Ground 1A, 1[a] when addressing element 6[a]). Patent Owner’s argument in its preliminary response is equally applicable to elements 4[a] and 6[a]. *See* Prelim. Resp. 13–15 (addressing claims 1, 4, and 6 together).

¹⁴ Although Petitioner recognizes that “Lindroos lacks detail regarding the MPEG encoding of . . . audio and video” and initially expresses reliance on Sung’s “disclosure of encoding audio sounds and video images into an encoded MPEG data stream that includes time stamps” (Pet. 8), Petitioner does not rely on Sung to meet element 1[a] (*see id.* at 13–16 (relying on Lindroos)).

Accordingly, for the same reasons discussed above in the context of element 1[a], we find that Petitioner has not established on the present record that the combination of Lindroos and Sung satisfies elements 4[a] and 6[a].

c. Conclusion as to Ground 1A

For the reasons discussed above, we determine on the present record that Petitioner has not established a reasonable likelihood that it would prevail in showing that the combination of Lindroos and Sung would have rendered the subject matter of any of claims 1, 4, and 6 obvious to one of ordinary skill in the art at the time of the invention.

C. Ground 1B: Obviousness over Lindroos, Sung, and Mizobuchi

Petitioner asserts the combination of Lindroos, Sung, and Mizobuchi would have rendered the subject matter of claims 2, 3, 5, and 7 obvious to one of ordinary skill in the art at the time of the invention. Pet. 28–29 (describing Mizobuchi), 29–34 (discussing motivation to combine and reasonable expectation of success), 34–45 (discussing the application of the art to the claims).

Claims 2 and 3 depend from claim 1 (Ex. 1001, 14:45), claim 5 depends from claim 4 (*id.* at 15:17), and claim 7 depends from claim 6 (*id.* at 16:13–14). Thus, claims 2, 3, 5, and 7 include the same elements—1[a], 4[a], and 6[a]—recited in the claims from which they depend and which Petitioner failed to satisfy in Ground 1A. *See* 37 C.F.R. § 1.75(c) (2022) (“Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim.”). And, Petitioner does not separately address elements 1[a], 4[a], or 6[a] in its discussion of Ground 1B. Pet. 28–45.

Accordingly, for the same reasons indicated above, we determine on the present record that Petitioner has not established a reasonable likelihood that it would prevail in showing that the combination of Lindroos, Sung, and Mizobuchi would have rendered the subject matter of any of claims 2, 3, 5, and 7 obvious to one of ordinary skill in the art at the time of the invention.

D. Ground 2: Obviousness over Baek and Oshima

Petitioner asserts the combination of Baek and Oshima would have rendered the subject matter of claims 1–7 obvious to one of ordinary skill in the art at the time of the invention. Pet. 45–48 (describing Baek and Oshima), 48–53 (discussing motivation to combine and reasonable expectation of success), 53–86 (discussing the application of the art to the claims).

1. Scope and Content of the Prior Art

a. Baek

Baek is directed to “[a] mobile terminal including a camera configured to capture a first video image of a user using the mobile terminal . . . [and] an audio output module configured to output currently played music.” Ex. 1007, code (57). Baek also describes a “method for creating a music video using images displayed on the mobile terminal during a video calling operation.” *Id.* ¶ 3.

Baek's Figure 8 is reproduced below.

FIG. 8

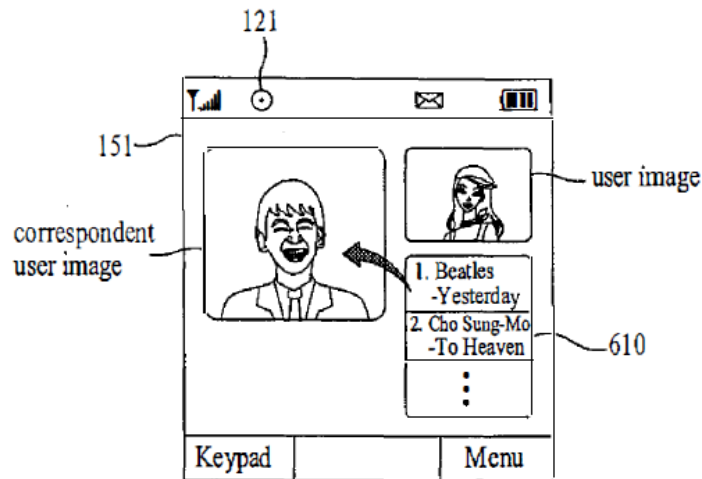


Figure 8 “is an overview of a display screen illustrating a created music video being transmitted to another user.” Ex. 1007 ¶ 20.

Baek explains that its mobile terminal can display two video images. Ex. 1007 ¶¶ 9–10, Fig. 8. The first video image is captured by “a user using the mobile terminal” while the second video image is captured by a user using “one other terminal during a video communication call operation” between the terminals. *Id.* The mobile terminal includes a controller “configured to create a music video file including at least one of the first video image and the second video image together with the currently played music.” *Id.* ¶ 9. The “background music may be a music file stored in the memory 160 of the terminal, [or] a music file received from an external server.” *Id.* ¶ 77, Fig. 5.

Baek teaches that “controller 180 stores an image or images that are displayed during the video communication call together with the played music (S30).” Ex. 1007 ¶ 78, Fig. 5. “After the images and music are

stored, the controller 180 creates a moving picture file (e.g., music video) using the stored data (S40).” *Id.* ¶ 79. The controller “then makes a single moving picture file by combining the displayed image(s) of the user and/or correspondent user with the selected background music to thereby create the music video.” *Id.*

b. Oshima

Oshima is directed to “an optical disk having a high resolution picture and a system for reproducing data on the optical disk.” Ex. 1008, code (57). The system includes “a recording and reproduction system for simultaneously reproducing a plurality of streams.” *Id.* ¶ 116. The optical disk has a three-dimensional “(3D) picture” and “a wide screen picture,” which “are recorded in the state where the picture is divided into two pictures of a right-eye picture and a left-eye picture, or divided into two screen pictures separated from each other along a horizontal line.” *Id.* ¶ 118. Oshima explains that “[a] right-eye signal of the 3D picture is referred to as an R-TV signal, and a left-eye signal is referred to as an L-TV signal. *Id.* ¶ 119. Oshima’s MPEG encoders compress the R-TV and L-TV signals into MPEG signals. *Id.*

After encoding the two signals, “a VPTS which is synchronized with an APTS of an audio signal is provided to a first MPEG signal and a second MPEG signal.” Ex. 1008 ¶ 120. In doing so, Oshima “allows two streams to be reproduced simultaneously . . . and also allows two screens to be displayed simultaneously.” *Id.* ¶ 133. And, Oshima explains that “[s]ynchronization methods are important.” *Id.* ¶ 396.

2. *Differences Between the Prior Art and the Claims;
Motivation to Modify*

Explaining the proposed combination, Petitioner contends that,

[w]hile Baek's terminal creates and stores in memory "a single moving picture file," that includes a first video image and/or a second video image together with music and that can be transmitted to other users over a wireless communication network, Baek lacks detail regarding the creation of the moving picture file.

Pet. 48 (citing Ex. 1007 ¶¶ 9–10, 78–79, 96, 103–105, 61–63, 71, Figs. 4, 5 (steps S30, S40); Ex. 1003 ¶ 83). Petitioner asserts that one of ordinary skill in the art "would have found it obvious to complement Baek with Oshima's disclosure of encoding the video images and packing the encoded images with the music to create the single moving picture file." *Id.* (citing Ex. 1007 ¶¶ 78–79, 96, Fig. 5 (steps S30, S40); Ex. 1008 ¶¶ 116, 119–120, Figs. 1, 48, 60–62; Ex. 1003 ¶ 83; Ex. 1018 ¶¶ 3–4¹⁵; Ex. 1019 ¶¶ 2, 7¹⁶). Additionally, Petitioner contends that one of ordinary skill in the art "would have also found it obvious to incorporate, in Baek's terminal, decoding of the video data in the moving picture file and synchronizing playback of the audio sounds and multiple video images using time stamps, as taught by Oshima." *Id.* at 48–49 (citing Ex. 1007 ¶ 45; Ex. 1008 ¶¶ 134–136, 158, 192, 209, 249–251, 257–259, 261–262, 272, 369–372, 440–441, 445–449, 462–473, 520, 522, Figs. 5, 7, 16 (step 63g), 39, 57 (steps 241h, 241m), 65, 68, 69, 75, 76, 90; Ex. 1003 ¶ 83).

¹⁵ U.S. Patent Application Publication No. 2011/0276712 A1, published Nov. 10, 2011.

¹⁶ U.S. Patent Application Publication No. 2011/0196688 A1, published Aug. 11, 2011.

In the discussion below, we focus on element 1[a] of claim 1 as we find it dispositive of the issues presented in this ground.

a. Claim 1 – Element 1[a]

As noted above, element 1[a] recites “an audio output unit that outputs sound based on audio data that includes a time stamp.” Ex. 1001, 14:24–25. In addressing “an audio output unit that outputs sound,” Petitioner contends that “Baek’s terminal includes ‘an audio output module configured to output currently played music.’” Pet. 55 (citing Ex. 1007 ¶¶ 9–10). In particular, Petitioner asserts that “Baek’s terminal includes ‘an output unit 150’ that includes ‘an audio output module 152, which supports the audio output requirements of the mobile terminal 100,’” that Baek’s “controller 180 can play the music” when a user selects a song to be played as background music, where “[t]he background music ‘may be a music file received from an external server,’” and that it would have been obvious that “audio output module 152 implemented using a speaker outputs sound based on audio data in the music file that is played by the controller 180.” *Id.* (citations omitted).

In addressing whether the output sound is “based on data that includes a time stamp,” Petitioner asserts that “Baek-Oshima renders obvious that the audio data includes a time stamp.” Pet. 56 (citing Ex. 1003 ¶ 91). Petitioner contends that “the background music output by Baek’s audio output module 152 ‘may be a music file received from an external server,’ e.g., ‘the user can request a file that exists on an external server.’” *Id.* (citing Ex. 1007 ¶ 77). Petitioner then asserts (1) “[i]t was well known and would have been obvious to a [person of ordinary skill in the art] for a music file received from an external server to include audio data packaged into a container according to a container format” (*id.* at 56–57 (citing Ex. 1003

¶ 91 (citing Ex. 1018 ¶¶ 3, 5, 8; Ex. 1017, 653¹⁷)); and (2) “[i]t was also well known and obvious that container formats existing at the time of the ’154 patent included a time stamp” (*id.* at 57 (citing Ex. 1003 ¶ 92)). Petitioner then states, “[f]or example, the MPEG-TS format was known to include a ‘Presentation TimeStamp (‘PTS’)’ and/or a ‘Decode TimeStamp (‘DTS’)’ in each MPEG-TS media packet preceding the encoded audio frame data, as shown in [Figure 11 of Exhibit 1018].” *Id.* (citing Ex. 1003 ¶ 92 (citing Ex. 1018 ¶¶ 92–106; Ex. 1019 ¶¶ 39–40; Ex. 1017, 655–57, 729, 731)).

In its Preliminary Response, Patent Owner contends that Petitioner’s “argument here is even more strained as Baek does not disclose the MPEG format, but merely states that the audio may be ‘a music file received from an external server.’” Prelim. Resp. 21.

On the present record before us, Petitioner has not shown that Baek discloses, expressly or inherently, that its audio data includes a time stamp and also has not shown that including a time stamp in Baek’s audio data would have been obvious. First, Petitioner does not allege that Baek expressly discloses that its audio data includes a time stamp. *See, e.g.*, Pet. 56–57. And, we do not find that it does.

Second, although Petitioner does not allege that Baek *inherently* discloses a time stamp in its audio data, Petitioner’s argument based on what would have been “well known” to one of ordinary skill in the art, could be interpreted as raising this position. *See* Pet. 56–57. Thus, we address this issue for completeness. On this point, and on the present record, Petitioner

¹⁷ Keith Jack, Video Demystified, A Handbook for the Digital Engineer, Elsevier Inc. (2005).

has not established that Baek inherently discloses a time stamp in its audio data based on Baek's teaching that the music file may be received from an external server. Petitioner does not assert that a music file received from an external server necessarily must be packaged into a container according to a container format. Pet. 56–57. And, the evidence cited by the Petition and Mr. Lett does not show otherwise. *See Cont'l Can*, 948 F.2d at 1269 (“Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.”). In particular, Mr. Lett relies on Exhibit 1018, which states that “[m]edia content . . . *may* be digitally encoded” and “is *commonly* packaged” prior to being distributed. *See* Ex. 1003 ¶ 91 (emphases added) (quoting Ex. 1018 ¶¶ 3, 5). Mr. Lett also relies on Exhibit 1017, which describes a “packetized elementary stream (PES)” as “consist[ing] of a single elementary stream (ES) which has been made into packets.” *Id.* (quoting Ex. 1017, 653). Further, Mr. Lett states that container formats existing at the time of the invention included a time stamp. *Id.* ¶ 92. And, Mr. Lett additionally relies on Exhibits 1017–1019 as describing the MPEG standards and their use of time stamps. *Id.* Mr. Lett also states that he “refer[s] to these other publications . . . merely for purposes of corroborating this common background knowledge recognizable to a [person of ordinary skill in the art] at the time.” *Id.* Although these references describe what may occur and what types of packages were commonly used at the time of the invention, none support a finding that music from an external server necessarily must be packed into a container and include a time stamp. Thus, Petitioner has not established that Baek inherently discloses that its audio data includes a time stamp.

Third, as noted above, Petitioner also argues that it would have been obvious to one of ordinary skill in the art (1) that “a music file received from an external server . . . include[s] audio data packaged into a container according to a container format”; and (2) “that container formats existing at the time of the ’154 patent included a time stamp.” Pet. 56–57. But, even if music received from an external server *could* include audio data packaged into a format that includes a time stamp, neither Petitioner nor Mr. Lett provides any reason why one of ordinary skill in the art would have found it obvious to include a time stamp in Baek’s audio data. *Id.*; Ex. 1003 ¶¶ 91–92. As reflected in our discussion above, Mr. Lett’s testimony regarding Exhibits 1017–1019 illustrates what was known in the art regarding several formatting and packaging options for audio data, but neither Petitioner nor Mr. Lett connect any of that evidence to a reason why one of ordinary skill in the art would have modified Baek’s audio data to include time stamps. Thus, Petitioner does not establish sufficiently on the record before us that audio data including a time stamp would have been obvious to one of ordinary skill in the art based on Baek.¹⁸

For the reasons explained above, on the present record we find that Petitioner has not established that the combination of Baek and Oshima satisfies element 1[a].

¹⁸ Although Petitioner recognizes that “Baek lacks detail regarding the creation of the moving picture file” and initially expresses reliance on Oshima’s “decoding of the video data in the moving picture file and synchronizing playback of the audio sounds and multiple video images using time stamps” (Pet. 48), Petitioner does not rely on Oshima to meet element 1[a] (*see id.* at 55–57 (relying on Baek)).

b. Claims 2–7

In addressing independent claims 4 and 6, which, as discussed above, include elements analogous to element 1[a] (i.e., elements 4[a] and 6[a]), Petitioner relies on its analysis of element 1[a]. Pet. 84 (citing, *inter alia*, Ground 2, 1[a] when addressing element 4[a]), 85 (citing, *inter alia*, Ground 2, 1[a] when addressing element 6[a]). Accordingly, for the same reasons discussed above in the context of element 1[a], we find that Petitioner has not established on the present record that the combination of Baek and Oshima satisfies elements 4[a] and 6[a].

In addressing dependent claims 2, 3, 5, and 7, Petitioner does not separately address elements 1[a], [4a], or [6]a, focusing instead on the limitations added by those dependent claims. *See* Pet. 81–84 (claims 2 and 3), 85 (claim 5), 86 (claim 7). Thus, the deficiencies identified above regarding claims 1, 4, and 6 apply equally to Petitioner’s analysis of dependent claims 2, 3, 5, and 7.

c. Conclusion as to Ground 2

For the reasons explained above, we determine on the present record that Petitioner has not established a reasonable likelihood that it would prevail in showing that the combination of Baek and Oshima would have rendered the subject matter of claims 1–7 obvious to one of ordinary skill in the art at the time of the invention.

IV. CONCLUSION

For the foregoing reasons, Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that at least one of the Challenged Claims is unpatentable.

V. ORDER

Accordingly, it is:

ORDERED that the Petition is *denied* as to the Challenged Claims of the '154 patent; and

FURTHER ORDERED that no *inter partes* review is instituted.

IPR2022-01546
Patent 8,615,154 B2

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