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TCL Technology Group Corporation (f/k/a TCL Corp.),
Petitioners,

v.

LG Electronics Inc.,
Patent Owner.

Case No. IPR2023-00240
Patent No. 7,982,803

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

The inventions disclosed in the '803 Patent are not at all like the cited prior art (U.S. Patent Publication 2004/00117858, "Boudreau") (EX1003), and Petitioner fails to establish otherwise. While the '803 Patent is directed to the synchronization of the audio and video for content being displayed on a television, Boudreau's disclosure relates to manipulation of an entirely separate audio signal. More specifically, Boudreau describes its invention as a multi-device system involving a television and a separate device (a doll), which can be used to supplement a television program by coordinating the television's audio and video with the doll's audio. EX1003, ¶0016. Controlling the processing for the main television audio (as in the '803 Patent) is not equivalent to processing separate audio for a doll.

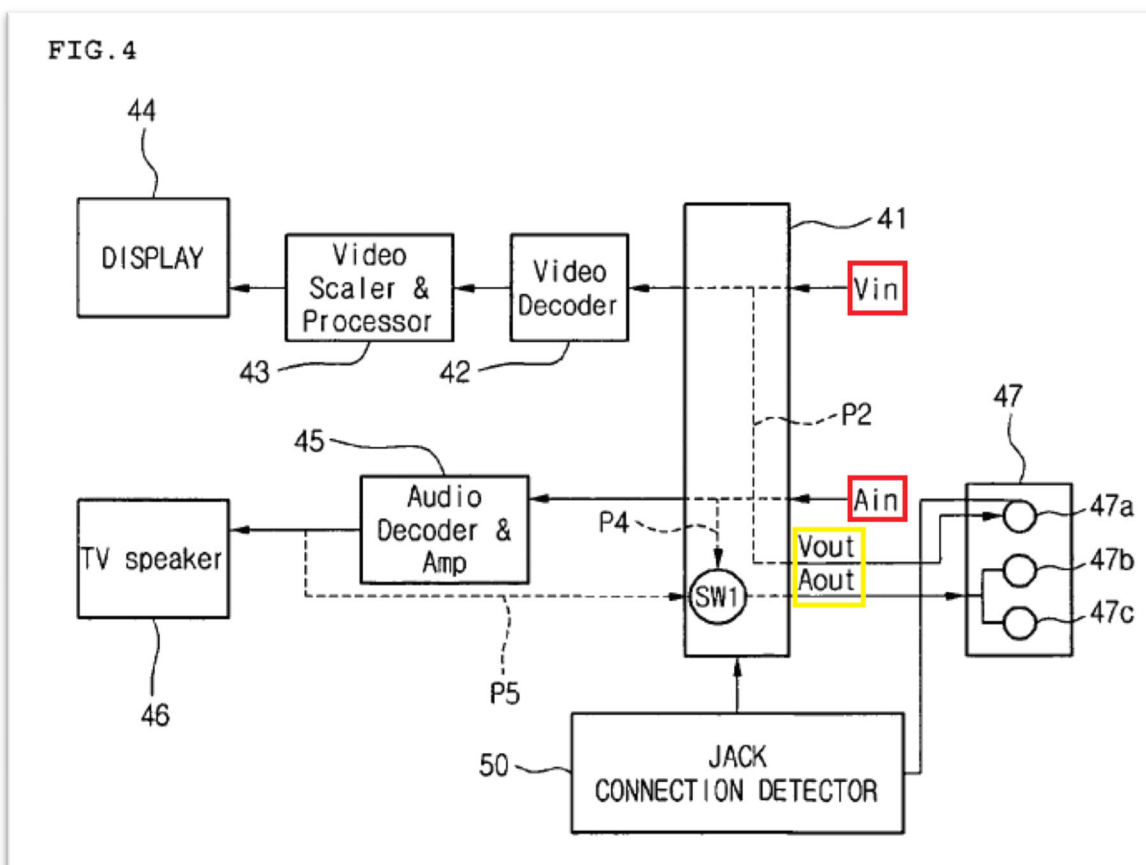
Petitioner muddles this distinction and builds its arguments on top of an unsupported assumption that the doll's audio and the television's audio in Boudreau can be relied upon interchangeably. Petitioner's attempt to map these two distinct and separate audio signals (the doll's audio and the television's audio) to the single audio signal claimed in the '803 Patent should be rejected. Further, because the audio signal that Petitioner maps in Boudreau is handled separately from the television video, Petitioner has failed to show that Boudreau discloses the claimed "switching unit," which selects a path for both the video signal and the audio signal. Patent Owner therefore respectfully requests that the Board deny institution of the

Petition.

II. BACKGROUND

A. Overview of the '803 Patent

The '803 Patent is directed to an apparatus and methods for synchronizing audio and video signals that are input to a digital television, particularly in scenarios where one or both of the audio and video signals are subsequently routed out of the television to an external device. EX1001, 1:12-23, FIG. 4 (annotated and reproduced below) (illustrating audio input and video input in red boxes and audio output and video output in a yellow box).



At the time of the invention in 2005, most digital televisions were equipped with an image processor capable of providing high-definition images, however, such televisions often lacked an audio processor capable of providing high-quality audio. *Id.* at 1:36-2:3. And thus, with respect to prior art systems, it was a common practice to output the audio signal from the television to an external audio system equipped with superior audio processing capabilities. *Id.* This practice, however, presented synchronization issues between the audio and video. *Id.* at 2:4-34. When both the audio signal and the video signal are processed internally by the television, the television was able to determine the timing difference between the audio processing and video processing and delay one of the signals to synchronize the signals. *Id.* However, when the audio is outputted to and processed by an external device, the television was no longer able to determine the timing difference between the audio and video processing for synchronization purposes. *Id.*

To solve these problems in the prior art, the '803 Patent teaches that the decision whether to route the audio signal through the television's internal processing can be made based on a type or kind of the external device. *Id.* at 2:38-3:36; *see also id.* at 8:16-19 (explaining that in some embodiments "an output path is automatically controlled for the synchronization of an audio signal according to the result of detecting the kinds of external devices"). Controlling the processing

based on the external device further avoids issues with prior art synchronization techniques that manually delayed signals because there are many variations that impact the potential delay required. *Id.* at 2:4-34.

B. Challenged Claims

The Petition challenges Claims 1-18 of the '803 Patent as unpatentable under 35 U.S.C. § 103 in view of U.S. Patent Publication No. 2004/0117858 ("Boudreau").

The challenged claims include five (5) independent claims that are directed to apparatuses and two (2) independent claims that are directed to methods. Petitioner does not substantially differentiate between the different independent claims, and thus the arguments below about Claim 1 apply equally to the other independent claims. *See, e.g.*, Petition, pp. 29-51 (challenging the independent claims with references back to its arguments for Claim 1).

Independent Claim 1 recites¹:

1. An audio and video synchronizing apparatus comprising:
a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;
an audio signal processing unit processing an audio signal that is provided to an audio device of the video processing equipment, the audio signal synchronized with the video signal;

¹ Herein, all emphasis is added, unless noted otherwise.

a switching unit selecting paths for the video signal that is input to the video signal processing unit and the audio signal that is input to the audio signal processing unit, and selecting at least an audio signal for output to an external device that is not part of the video processing equipment;

an outputting unit outputting the selected at least an audio signal to the external device; and

an output selecting unit controlling the switching unit according to a kind of the external device,

wherein the switching unit is controlled to select a first audio signal that bypasses the audio signal that is input to the audio signal processing unit as the at least an audio signal for output to the external device or to select a second audio signal output from the audio signal processing unit as the at least an audio signal for output to the outputting unit.

Like Claim 1, all of the independent claims include claim language requiring that “the audio signal” could be played directly from the speakers of the television, but if the audio signal is instead output to an external device then the signal is either processed by, or bypasses the processing of, the television’s internal audio processor unit.

- Independent Claim 6 recites, “an audio signal processing unit processing *an audio signal* that is provided to an audio device *of the video processing*

equipment,” and an “output selecting unit” that selects either a first or second audio signal “as *the audio signal* that is output to the external device.”

- Independent Claim 7 recites, “an audio signal processing unit outputting *an audio signal,*” and an “audio output selecting unit” that selects “as *the audio signal* that is output to the external device” either “an audio signal that bypasses the audio signal that is input to the audio signal processing unit” or “*an audio signal output from the audio signal processing unit.*”
- Independent Claim 8 recites, “*an audio signal processing unit processing an audio signal* that is provided to an audio device *of the video processing equipment,*” and an “output selecting unit [that] controls the outputting unit to” select the outputting audio signal as either “a first audio signal that bypasses the audio signal that is input to the audio signal processing unit” or “a second audio signal *output from the audio signal processing unit.*”
- Independent Claim 9 recites, “*an audio signal processing unit processing an audio signal* that is provided to an audio device *of the video processing equipment,*” and an “output selecting unit [that] controls the outputting unit to” select “the outputting audio signal as either “a first audio signal that bypasses the audio signal that is input to the audio signal processing unit” or “a second audio signal *output from the audio signal processing unit.*”

- Independent Claim 10 recites, “***determining a kind of an external device that*** is not part of the video processing equipment and ***is connected to an output port of video processing equipment,***” and “selecting an audio signal according to a result of the determination ... wherein the selected audio signal is either a first audio signal that bypasses an audio signal that is input to an audio signal processing unit... or ***a second audio signal output from the audio signal processing unit.***”
- Independent Claim 16 recites “selecting an output mode of ***video processing equipment,***” “selecting an audio signal according to the selected output mode for output to an external audio device,” “outputting the selected audio signal to the external audio device, wherein the selected audio signal is either a first audio signal that bypasses an audio signal that is input to ***an audio device of the video processing equipment*** that synchronizes the audio signal with a video signal that is provided to a display device of the video processing equipment or a second audio signal ***output from the audio device.***”

III. LEVEL OF SKILL IN THE ART

For the limited purpose of this Preliminary Response, Patent Owner does not contest Petitioner's definition of a person of ordinary skill in the art (“POSA”), but reserves the right to do so in the event that trial is instituted.

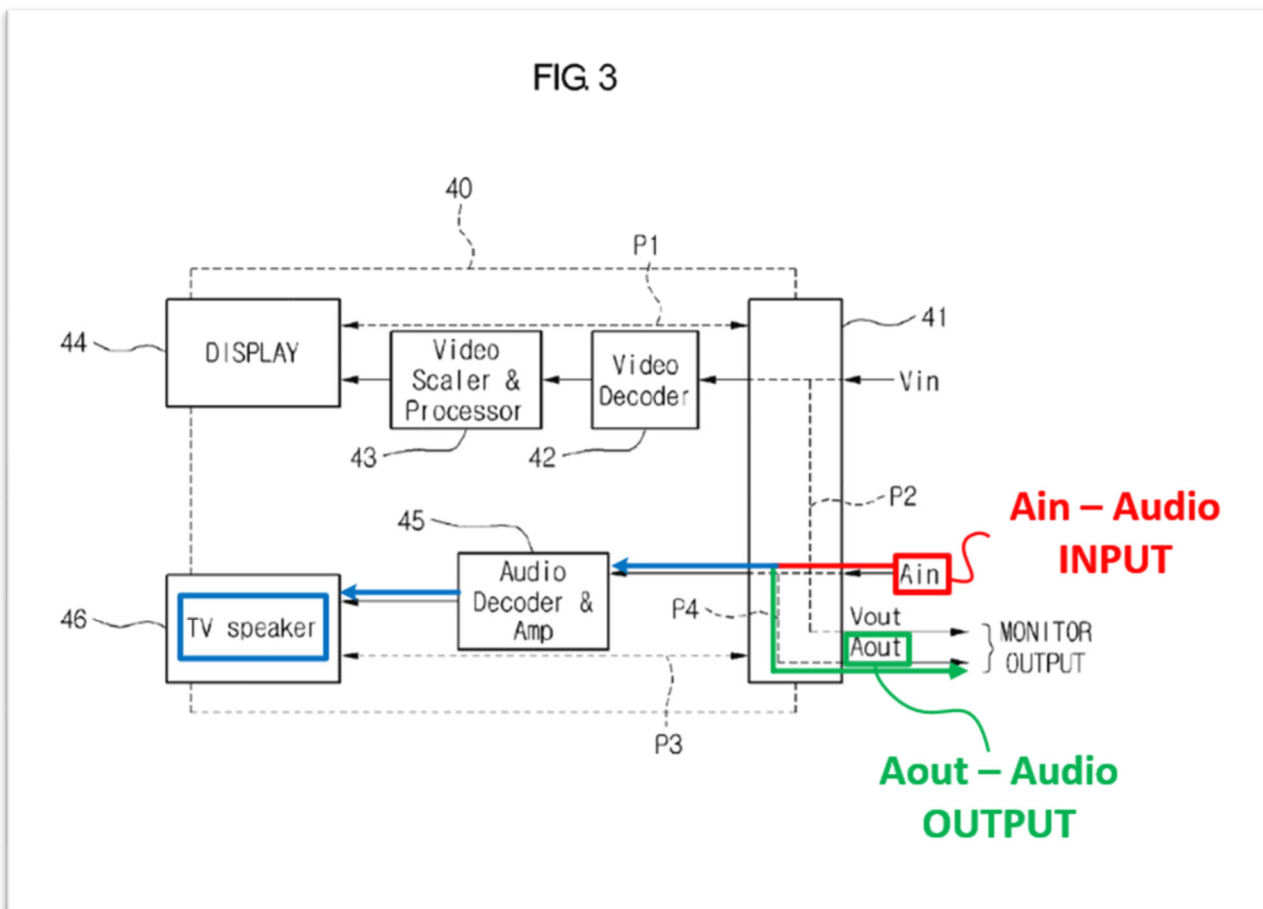
IV. CLAIM CONSTRUCTION

Petitioner submitted that the terms in the challenged claims of the '803 Patent should be given their plain and ordinary meaning. Petition at 4. For purposes of evaluating this preliminary response, Patent Owner's position is that the Board need not construe any claim terms in the '803 Patent.

However, as explained above in Section II.B, Patent Owner submits that the plain claim language requires that the audio signal recited in each independent claim is the audio for the video content, and this audio could be provided to the television's audio device (speaker). This is also confirmed by the '803 Patent's specification:

FIG. 3 illustrates the configuration of *an audio and video signal processing unit 40 of a digital TV, a video processing equipment employing the present invention*. Referring to FIG. 3, the digital TV includes an AV switch 41 switching inputted a video signal (Vin) and *an audio signal (Ain)* ... an audio decoder/amplifier 45 decoding and amplifying the audio signal inputted through the AV switch 41, and a *TV speaker 46 outputting the decoded and amplified audio signal*.

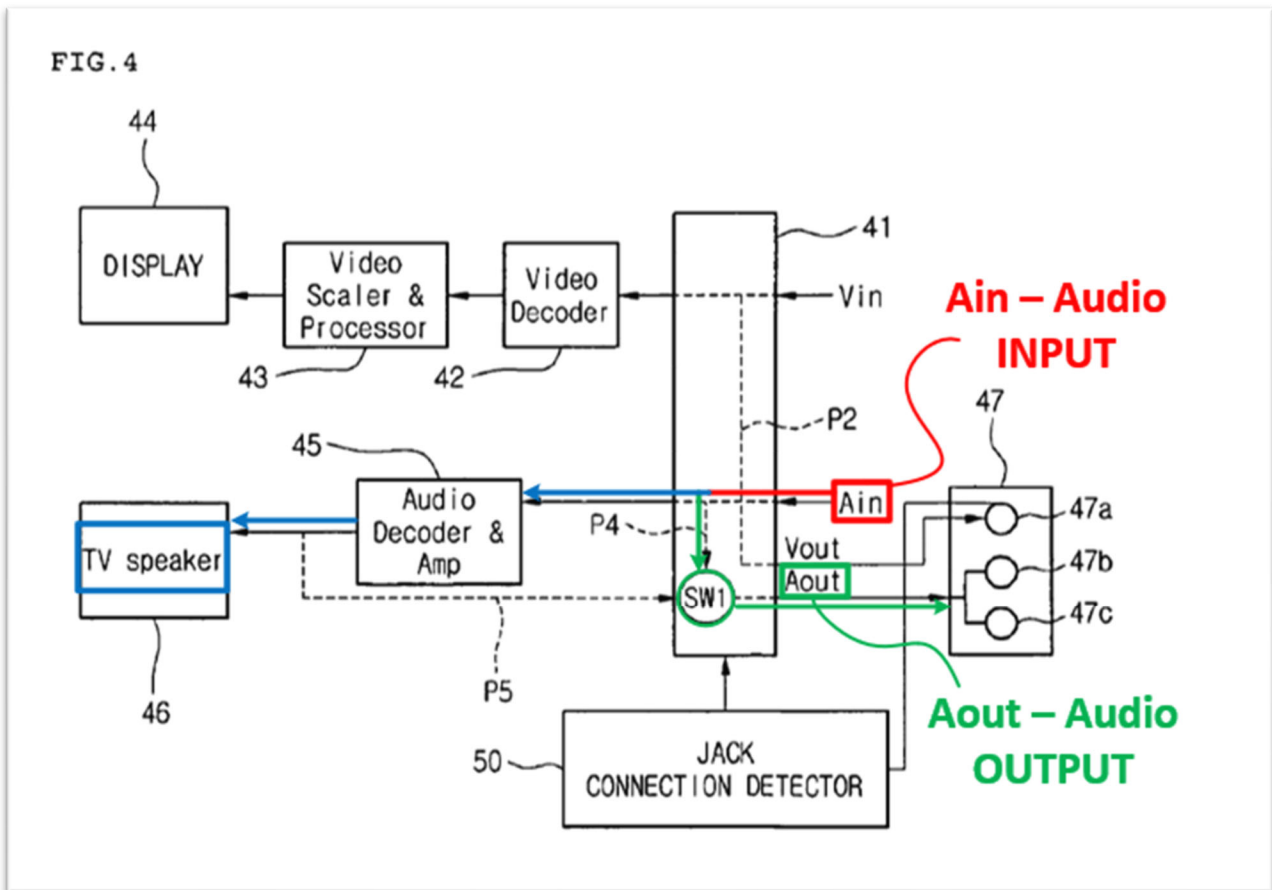
See, e.g., EX1001, 4:3-15.



See, e.g., EX1001, FIG. 3 (illustrating that the audio input (annotated red) can be output to the TV speaker (annotated blue) or external to the TV as audio output (annotated green)).

[T]he AV switch 41 controls the audio and video signal processing paths, thereby allowing the audio and video output ***using the speaker 46 and the display 44 of the video processing equipment***, or allowing the audio and video output to an external device connected to an output port.

See, e.g., *id.* at 5:40-45; see also *id.* at 6:4-17.

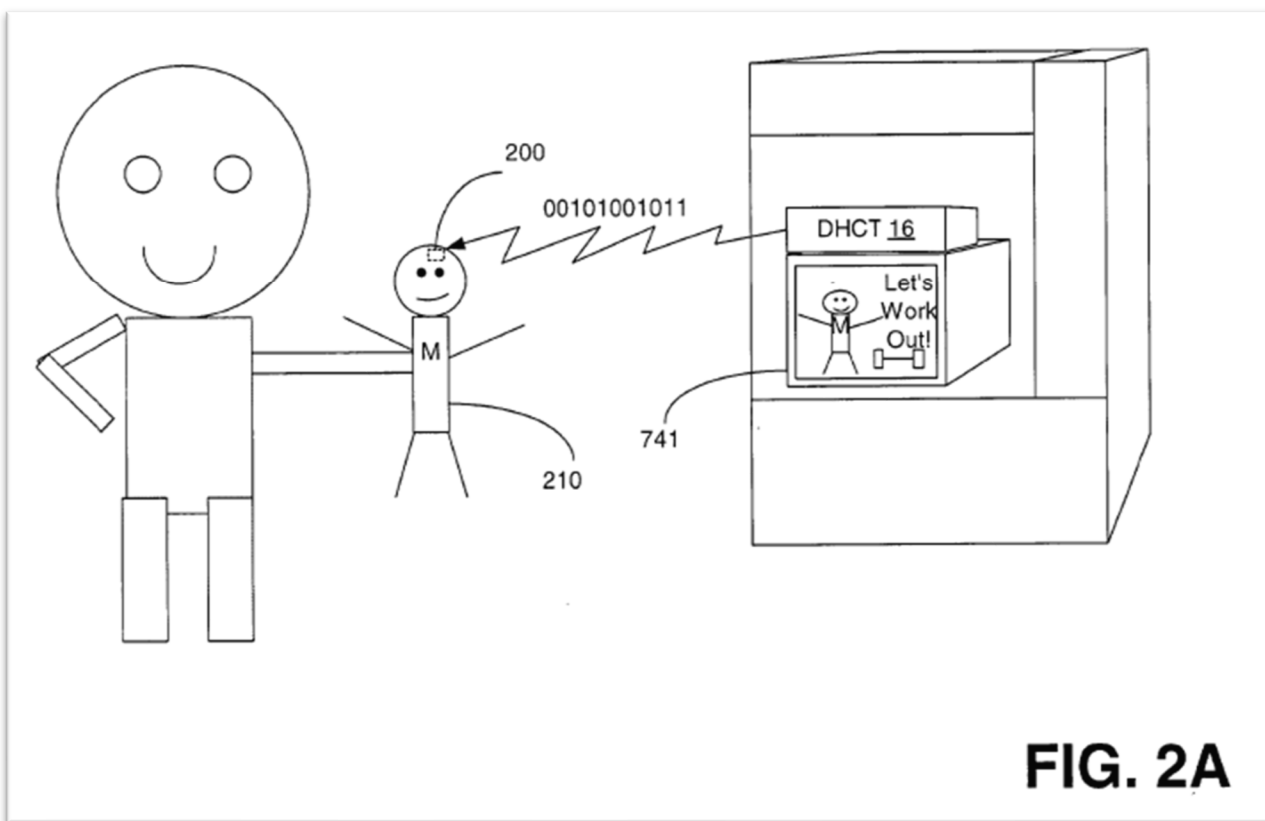


See, e.g., *id.* at FIG. 4 (illustrating that the audio input (annotated red) can be output to the TV speaker (annotated blue) or external to the TV as audio output (annotated green)).

V. SUMMARY OF THE PRIOR ART REFERENCE (BOUDREAU)

Boudreau is directed to a multi-device system that is designed to enhance the viewing experience of a television show with *separate* audio content emitted from an external doll or action figure. EX1003, ¶¶ 0016, 0023, 0092; FIG. 2A (reproduced below). The doll can be used to “increase the level of interest in the

show” by outputting its own audio content on top of the content presented on the television. *Id.* at ¶¶ 0016, 0023. Examples provided by Boudreau include a child workout show where the doll is configured to output phrases like “let’s work out” and an educational show where the doll is configured to output phrases like “stay fit.” *Id.* at ¶¶ 0024-25.



In Boudreau, the content presented on the external device (e.g., doll’s audio) is specifically defined as “related content” that can be presented in coordination with a television show: “Herein such content that is related (e.g., relatedness as to subject matter, message, theme, etc.) to programming presented on a television and is for

download (or transmittal) to an external device will be referred to as **related content**.” *Id.* at ¶ 0015 (emphasis added). Consistent with industry standards at the time, Boudreau explains “related content” (e.g., doll’s audio) would be separated into a different elementary data stream from the television program’s main audio and video:

An MPEG encoder such as the encoder 520 receives content such as video and audio signals and converts the content into digitized streams of content known as elementary streams. The encoder produces separate elementary streams for the video content and the audio content. In many instances, an MPEG program, such as a movie, includes **a video elementary stream, audio elementary streams** in multiple different languages, and **associated elementary streams**, which include things such as the director's comments, out takes, etc., or whatever the producer or distributor or others desire to associate with the movie, **such as related content to download to an external device**.

Id. at ¶ 0035 (emphasis added).

Boudreau teaches that “related content” is transmitted to the doll through an “XPORT buffer” and with a software program referred to as the “XPORT application.” *Id.* at ¶ 0069. The “XPORT application” in Boudreau “includes functionality for effecting the retrieval of **related content** from a data stream, routing **related content** to an appropriate buffer or buffers, and interpreting time

stamps for the **related content** designated for transmittal and/or download[.]” *Id.* at ¶ 0072. However, nothing in Boudreau indicates that the XPORT application has any involvement with processing the main audio or video for presentation on the television’s display and through the television’s speakers.

VI. THE PETITION DOES NOT ESTABLISH A REASONABLE LIKELIHOOD OF SUCCESS

The Board should deny institution because Petitioner fails to show that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims. 35 U.S.C. § 314(a).

For brevity, the Patent Owner addresses only those arguments that are necessary for the Board to determine whether to institute trial at this stage and makes no admission or waiver with respect to arguments not addressed herein. Further, to avoid confusion and facilitate the Board’s review, the Patent Owner adopts the Petition’s labeling of claim elements of the ’803 Patent for this Response without accepting the substance of the Petition’s arguments or any substantive implications of such labeling.

A. Legal Standard

Petitioner asserts a single obviousness ground for unpatentability in view of a single prior art reference, Boudreau. However, while framed as an “obviousness” challenge under Section 103, the arguments are more akin to an anticipation

argument under Section 102. Petitioner never identifies any potential modification to Boudreau. In any case—whether considered as an “obviousness” argument or an “anticipation” argument—Petitioner must show that all claim elements are present in the cited art. *See Personal Web Technologies, LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017) (reversing obviousness determination for failing to explain how the cited art “disclose all of the elements recited in the challenged claims”).

B. Petitioner fails to establish that all elements of the challenged claims can be found in Boudreau

The '803 Patent is fundamentally different from that of Boudreau. The '803 Patent is directed to synchronizing the audio and video signals input to a digital television (EX1001, 1:12-23), whereas Boudreau is directed to an audio signal that is entirely **separate from** the audio and video designated for the television, *see supra* § V, pp.10–13. Petitioner muddles this distinction and simply assumes—without providing any explanation or citation—that Boudreau's disclosure of a doll's audio can be mapped to the audio inputted into a television. This flawed analysis should be rejected.

1. Petitioner's reliance on Boudreau's “related content” (e.g., audio for the doll) is incorrect

The claims require a scheme for selectively processing, or bypassing the processing of, the main audio for the video content displayed on the television. As discussed in Section II.B, the independent claims require the audio signal outputted

to an external device to be an audio signal that the processing unit could alternatively provide to the television's speakers. *See also, e.g.*, EX1001 at 4:3-5, 5:40-45, FIG. 3, FIG. 4, 7:21-27.

Petitioner ignores this requirement and argues that the claims can be satisfied based on a piecemeal mapping of Boudreau's doll audio and television audio. With respect to limitation 1[b], Petitioner argues that Boudreau discloses "an audio signal processing unit processing an audio signal that is provided to an audio device of the video processing equipment" by citing to Boudreau's disclosure of a digital home communication terminal (DHCT) and the DHCT's capability of processing *the television's audio*. Petition at 31-32. Petitioner even specifically cites to the use of "an audio elementary stream" for an MPEG picture in Boudreau—something that is expressly distinct from "related content" in Boudreau. *Compare* Petition at 32 (citing EX1003 at ¶ 0043), *with* EX1003 at ¶ 0035. Nonetheless when addressing the same "audio signal" in limitation 1[c], Petitioner cites to "XPORT application" in Boudreau, which is used exclusively for the doll's audio ("related content") and not the television's audio signal. Petition at 32-33; EX1003 at ¶ 0072 (the XPORT application is used "for effecting the retrieval of *related content* ... routing *related content* ... and interpreting time stamps for the *related content* designated for transmittal and/or download to the external device."). The same audio signal is also

recited in limitation 1[e], and Petitioner again cites to the XPORT application, improperly conflating the doll's audio with the television's audio. Petition at 35-36.

Similar to its mistake with the "audio signal," Petitioner also disregards the fact that the same "audio processing unit" is recited in both limitations 1[b] and 1[e]. Petitioner has not shown that the XPORT application (the alleged "switching unit" for 1[e]) has any ability to control the DHCT's audio processing for the main television audio, which is what Petitioner cites for 1[b]. *Compare id.* at 31-32 with 34-35. The sleight-of-hand in Petitioner's approach is also highlighted by Petitioner ignoring the claimed "**audio device** of the video processing equipment," recited in limitation 1[b], which is further disconnected from the XPORT application.²

Petitioner's disregard for common claim terms (e.g., audio signal, audio processing unit) is fatal to the Petition. Petitioner cannot change the meaning of the claimed "audio signal" and "audio processing unit" in order to stitch together different, incompatible aspects of Boudreau's disclosure in a way that allegedly satisfies the Challenged Claims. Petitioner does not provide any justifiable basis that could support treating the claimed "audio signal" or "audio processing unit"

² Independent Claims 6, 8, 9, and 16 also recite "an audio device of the video processing equipment," and Petitioner's failure to address this element is an independent basis to deny institution.

differently in the various instances recited in the claims. Nor does Petitioner provide any obviousness argument that a POSA would modify Boudreau such that the XPORT application and external doll would use the same “audio signal” as the television. Thus, because all of the claims similarly require an audio signal that may be provided to the television’s speakers (*supra* § II.B), Petitioner has failed to present a *prima facie* obviousness case against any challenged claims.

2. *Petitioner fails to establish a reasonable likelihood that Boudreau discloses “a switching unit selecting paths for the video signal that is input to the video signal processing unit.”*

In addition to the deficiencies noted above, Petitioner also fails to establish that Boudreau discloses the claimed “switching unit” that “select[s] for the video signal that is input to the video signal processing unit,” as required by claim limitation 1[c]. *See, e.g.*, EX1001 at 5:40-45 (“the AV switch 41 controls the audio and **video signal processing paths**, thereby allowing the audio and video output using the speaker 46 and the display 44 of the video processing equipment, or allowing the audio and video output to an external device connected to an output port”). Petitioner contends that the claimed “switching unit” is disclosed by the Boudreau’s disclosure of the “XPORT application.” Petition at 32-36. However, as discussed above, Petitioner fails to show that the XPORT application is capable of controlling anything beyond the doll’s audio, let alone selecting paths for the **video** signal that is input to the video signal processing unit. For this additional

reason, Petitioner fails to establish a reasonable likelihood that Boudreau renders Claim 1 obvious.

VII. CONCLUSION

For at least these reasons, Petitioner fails to establish a reasonable likelihood that it would prevail with respect to at least one of the challenged claims, and thus the Petition for *inter partes* review should be denied.

Date: March 20, 2023

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Patent Owner Preliminary Response, exclusive of the exempted portions as provided in 37 C.F.R. § 42.24(a), contains no more than 3,369 words and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24(b).

Date: March 20, 2023

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CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. § 42.6(e), the undersigned certifies that on the 20th day of March, 2023, a complete and entire copy of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** was served by email on the following counsel for Petitioners:

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