

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.
TCL Industries Holdings Co., Ltd.
TCL Industries Holdings (H.K.) Limited
TTE Technology, Inc. (d/b/a TCL North America)
TTE Corporation
TCL Moka International Limited
TCL Moka Manufacturing S.A. de C.V.
TCL King Electrical Appliances (Huizhou) Co. Ltd.
Manufacturas Avanzadas S.A. de C.V.
TCL Smart Device (Vietnam) Co., Ltd
Shenzhen TCL New Technology Co., Ltd.
TCL Optoelectronics Technology (Huizhou) Co., Ltd.
TCL Overseas Marketing Ltd.
TCL Technology Group Corporation (f/k/a TCL Corp.),

Petitioners

v.

LG Electronics Inc.
Patent Owner

Case No. IPR2023-00240

**PETITION FOR INTER PARTES REVIEW OF
U.S. PATENT NO. 7,982,803**

TABLE OF CONTENTS

Table of Authorities	ix
Petitioners' Exhibit List	x
I. Introduction.....	1
II. Mandatory Notices.....	1
A. Real Party-in-Interest	1
B. Related Matters	2
C. Lead and Back-Up Counsel.....	2
D. Service Information.....	3
III. Payment of Fees.....	3
IV. Requirements for <i>Inter Partes</i> Review under 37 C.F.R. § 42.104.....	3
A. Grounds for Standing	3
B. Claims for Which Review Is Requested	4
C. Statutory Grounds of Challenge	4
D. Proposed Claim Constructions	4
E. How the Construed Claims Are Unpatentable.....	4
F. Supporting Evidence	4
V. The '803 Patent.....	5
A. Summary of the '803 Patent.....	5
B. Level of Ordinary Skill in the Art	13
C. Prosecution History.....	13
VI. THE PRIOR ART - u.S . PUBLICATION NO. 2004/0117858 TO BOUDREAU ET AL.....	15
VII. CLAIMS 1-18 OF THE '803 PATENT ARE UNPATENTABLE UNDER 35 U.S.C. §103 IN VIEW OF BOUDREAU ET AL.....	29
A. Independent Claim 1	29
a) Limitation 1[pre]: “An audio and video synchronizing apparatus comprising”	29

- b) Limitation 1[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;” 30
- c) Limitation 1[b]: “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;” 31
- d) Limitation 1[c]: “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;” 32
- i) Limitation 1[d]: “an outputting unit outputting the selected at least an audio signal to the external device; and” 33
- j) Limitation 1[e]: “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.” 34
- B. Claim 2: “The apparatus according to claim 1, further comprising a detector detecting the kind of the external device connected to the outputting unit.” 38**
- C. Claim 3: “The apparatus according to claim 1, wherein the kind of the external device connected to the outputting unit is either an audio/video device or an audio device.” 38**
- D. Claim 4: “The apparatus according to claim 3, wherein the switching unit is controlled to select the second audio signal when it is determined that the external device connected to the outputting unit is the audio.” 39**

E.	Claim 5: “The apparatus according to claim 1, wherein the kind of the external device connected to the outputting unit is determined according to whether the external device is connected to a video output port or an audio output port.”	39
F.	Independent Claim 6	40
	a) Limitation 1[pre]: “An audio and video synchronizing apparatus comprising”	40
	b) Limitation 6[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”	40
	c) Limitation 6[b]: “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; and”	40
	d) Limitation 6[c]: “an output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment,”	41
	e) Limitation Claim 6[d]: “wherein the output selecting unit selects a first audio signal that bypasses the audio signal that is input to the audio signal processing unit as the audio signal that is output to the external device or selects a second audio signal output from the audio signal processing unit as the audio signal that is output to the external device.”	41
G.	Independent Claim 7	41
	a) Limitation 7[pre]: “An audio and video synchronizing apparatus comprising:”	41
	b) Limitation 7[a], “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”	41
	c) Limitation 7[b], “an audio signal processing unit outputting an audio signal that is synchronized with the video signal; and”	42

d)	Limitation 7[c], “an audio output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment,”	42
e)	Limitation 7[d], “wherein the audio output selecting unit selects an audio signal that bypasses the audio signal that is input to the audio signal processing unit or selects an audio signal output from the audio signal processing unit that is synchronized with the video signal as the audio signal that is output to the external device.”	42
H.	Independent Claim 8	42
a)	Limitation 8[pre]: “An audio and video synchronizing apparatus comprising:”	42
b)	Limitation 8[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”	43
c)	Limitation 8[b]: “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;”	43
d)	Limitation 8[c], “an outputting unit outputting at least an audio signal to an external device that is not part of the video processing equipment; and”	43
e)	Limitation 8[d]: “an output selecting unit controlling the outputting unit according to a kind of the external device, wherein the output selecting unit controls the outputting unit 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 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 output to the external device.”	43
I.	Independent Claim 9	44
a)	Limitation 9[pre], “An audio and video synchronizing apparatus comprising:”	44

b)	Limitation 9[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”	44
c)	Limitation 9[b]: “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;”	44
d)	Limitation 9[c], “an outputting unit outputting at least an audio signal to an external device that is not part of the video processing equipment;”	44
e)	Limitation 9[d]: “a detecting unit detecting a kind of the external device;”	44
f)	Limitation 9[e]: “an output selecting unit controlling the outputting unit according to the detected kind of the external device, wherein the output selecting unit controls the outputting unit 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 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 output to the external device.” ..	45
J.	Independent Claim 10	45
a)	Limitation 10[pre]: “A method of controlling audio and video output comprising:”	45
b)	Limitation 10[a]: “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;”	45
c)	Limitation 10[b]: “selecting an audio signal according to a result of the determination and outputting the selected audio signal to the external device,”	45
d)	Limitation 10[c]: “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 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 signal processing unit.”	46
K.	Claim 11: “The method according to claim 10, determining the kind of the external device comprises determining whether the external device connected to the output port is an audio device.”	46
L.	Claim 12: “The method according to claim 10, wherein the second audio signal is an audio signal that is provided to a speaker of the video processing equipment and synchronized with the video signal.”	46
M.	Claim 13: “The method according to claim 10, wherein selecting the audio signal and outputting the selected audio signal to the external device is performed automatically according to a result of the determination.”	46
N.	Claim 14: “The method according to claim 10, wherein selecting the audio signal and outputting the selected audio signal to the external device is performed according to a user's output mode setting.”	47
O.	Claim 15: “The method according to claim 10, wherein the audio signal that is synchronized with the video signal is delayed according to a video signal processing path.”	47
P.	Independent Claim 16	48
	a) Limitation 16[pre]: “A method of controlling audio and video output comprising:”	48
	b) Limitation 16[a]: “selecting an output mode of video processing equipment;”	49
	c) Limitation 16[b]: “selecting an audio signal according to the selected output mode for output to an external audio device that is not part of the video processing equipment;”	50
	d) Limitation 16[c], “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.”	50
Q.	Claim 17: “The method according to claim 16, further wherein the second audio signal is an audio signal that is provided to a speaker of the video processing equipment and synchronized with the video signal.”.....	51
R.	Claim 18: “The method according to claim 16, wherein the audio signal that is synchronized with the video signal is delayed according to a video signal processing path.”	51
VIII.	The Board Should Not Exercise Its Discretion to Deny Institution.....	51
A.	35 U.S.C. § 314(a).....	51
1.	Factor 1: The parallel proceeding is not stayed, and it is unknown whether a stay would be granted (Fintiv factor 1)....	52
2.	Factor 2: The trial will commence after the due date of a Final Written Decision (Fintiv factor 2)	53
3.	Factor 3: The parties’ investments in the parallel proceeding weigh in favor of institution (Fintiv factor 3).....	54
4.	Factor 4: IPR will address issues not raised in the parallel proceeding (Fintiv factor 4)	55
5.	Factor 5: PO and Petitioners are parties in the parallel proceeding (Fintiv factor 5)	56
6.	Factor 6: Other circumstances weigh in favor of institution (Fintiv factor 6)	56
B.	35 U.S.C. § 325(d).....	57
IX.	Conclusion	59

TABLE OF AUTHORITIES

Cases

<i>Acuity Brands Lighting, Inc. v. Ultravision Technologies, LLC</i> , IPR2020-01638, Paper 8 (PTAB May 6, 2021).....	56
<i>Apple Inc. v. Fintiv, Inc.</i> , IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential).....	52, 53, 55, 57
<i>Becton, Dickinson & Co. v. B. Braun Melsungen AG</i> , IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017).....	59
<i>Cisco Sys., Inc. v. Estech Sys., Inc.</i> , IPR2021-00333, Paper 12 (PTAB July 7, 2021)	53
<i>HP Inc. v. Slingshot Printing LLC</i> , IPR2020-01084, Paper 13 (PTAB Jan. 13, 2021).....	58
<i>HP Inc. v. Slingshot Printing LLC</i> , IPR2020-01084, Paper 13 (PTAB Jan. 13, 2021).....	57

Statutes

35 U.S.C. § 314(b)	54
35 U.S.C. § 325(d)	57

PETITIONERS' EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 7,982,803 to Lee
1002	Reserved
1003	U.S. Patent Publication No. 2004/0117858 (Boudreau et. al.)
1004	Jack, "Video Demystified, A Handbook for the Digital Engineer," Elsevier Inc. (2005)
1005	Declaration of David B. Lett in Support of Petition for <i>Inter Partes</i> Review
1006	Curriculum Vitae of David B. Lett
1007	FINTIV Stipulation
1008	Docket Control Order
1009	Average Time to Trial
1010	LGE v. TCL - Complaint for Patent Infringement
1011	Infringement Contentions
1012	Non Final Office Action filed September 3, 2009
1013	Amendment filed October 13, 2009
1014	Non Final Office Action filed January 6, 2010
1015	Amendment filed April 5, 2010
1016	Final Office Action filed July 12, 2010
1017	Amendment filed October 11, 2010
1018	Non Final Office Action filed November 15, 2010
1019	Amendment filed March 15, 2011

I. INTRODUCTION

USP 7,982,803 (“the ’803 patent,” Ex. 1001¹) purports to solve the problem of synchronization of sound from an external speaker connected to a television with the display of related content on the screen of the television and sound from the television’s internal speakers. The solution provided by the ’803 patent is to (1) identify the type of external device that is coupled to television and either (2) bypass audio processing by the television if such processing should not be done or is performed internally by the external device, or (3) provide processed audio signals to the external device delayed to match the video displayed on the TV to avoid “uncoincident lip-sync” during reproduction of sound on an external audio device (a speaker). Ex. 1005 at ¶68. As explained herein, the prior art, namely U.S. Patent Publication No. 2004/0117858 (Boudreau et. al., Ex. 1003) had already recognized and solved this issue in a manner that renders obvious the invention of the ’803 patent as claimed. *Id.* As a consequence, all claims of the ’803 patent are unpatentable.

II. MANDATORY NOTICES

A. Real Party-in-Interest

Petitioners identify TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.); TCL Industries Holdings Co., Ltd.; TCL Industries

¹ All exhibit page numbers reference the page numbers in the original exhibit.

Holdings (H.K.) Limited; TTE Technology, Inc. (d/b/a TCL North America); TTE Corporation; TCL Moka International Limited; TCL Moka Manufactruing S.A. de C.V.; TCL King Electrical Appliances (Huizhou) Co. Ltd.; Manufacturas Avanzadas S.A. de C.V.; TCL Smart Device (Vietnam) Co., Ltd.; Shenzhen TCL New Technology Co., Ltd.; TCL Optoelectronics Technology (Huizhou) Co., Ltd.; TCL Overseas Marketing Ltd.; TCL Technology Group Corporation (f/k/a TCL Corp.), as the real parties-in-interest.

B. Related Matters

Petitioners state that, as of the filing date of this Petition, the '803 patent is involved in litigation in the Eastern District of Texas, captioned *LG Electronics Inc. v. TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.) et al.*, Case No. 2:22-cv-00122-JRG. LG Electronics Inc. is referred to herein as “Patent Owner” or “PO”). Petitioners are not aware of any other judicial or administrative matter involving the '803 patent which would affect, or be affected by, a decision in this IPR.

C. Lead and Back-Up Counsel

Petitioners provide the following designation of counsel:

Lead Counsel: Jeremy D. Peterson (Reg. No. 52,115)

Backup Counsel: Bradford A. Cangro (Reg. No. 58,478)

D. Service Information

Petitioners state that postal mailings and hand-deliveries should be addressed to:

Jeremy D. Peterson
PV Law LLP
5335 Wisconsin Avenue, N.W., Suite 440
Washington, DC 20015-2052
Telephone: 202.871.0140
Facsimile: 202.888.3163

Petitioners consent to electronic service by email at the following email addresses:

jeremy.peterson@pvuslaw.com
bradford.cangro@pvuslaw.com
LGE-IPRs@pvuslaw.com

III. PAYMENT OF FEES

The required fees are submitted herewith. If any additional fees are due at any time during this proceeding, the Office is authorized to charge such fees to Deposit Account No. 60-3815.

IV. REQUIREMENTS FOR *INTER PARTES* REVIEW UNDER 37 C.F.R. § 42.104

A. Grounds for Standing

Petitioners certify that the '803 patent is available for IPR and that Petitioners are not barred or estopped from requesting IPR challenging the claims of the '803 patent under 37 C.F.R. § 42.101.

B. Claims for Which Review Is Requested

Petitioners request IPR of claims 1-18 of the '803 patent.

C. Statutory Grounds of Challenge

Petitioners identify the specific statutory grounds on which the challenges are based as follows:

Ground	Statute	Reference(s)	Claim(s)
1	Post A.I.A. 35 U.S.C. 103	Boudreau et al.	1 – 18

D. Proposed Claim Constructions

Pursuant to 37 C.F.R. § 42.104(b)(3), Petitioners propose the claims of the '803 patent should be interpreted according to the plain and ordinary meaning as they would have been understood by a POSITA at the time of the purported invention of the '803 patent in light of the claim language, the specification, and the prosecution history. Ex. 1005 at ¶87.

E. How the Construed Claims Are Unpatentable

Petitioners provide an explanation of how the claims of the '803 patent are unpatentable under the statutory grounds identified above in section VII *infra*.

F. Supporting Evidence

Petitioners' Exhibits List, *supra*, identifies the exhibit numbers of the supporting evidence relied upon in the challenges in section VII, *infra*.

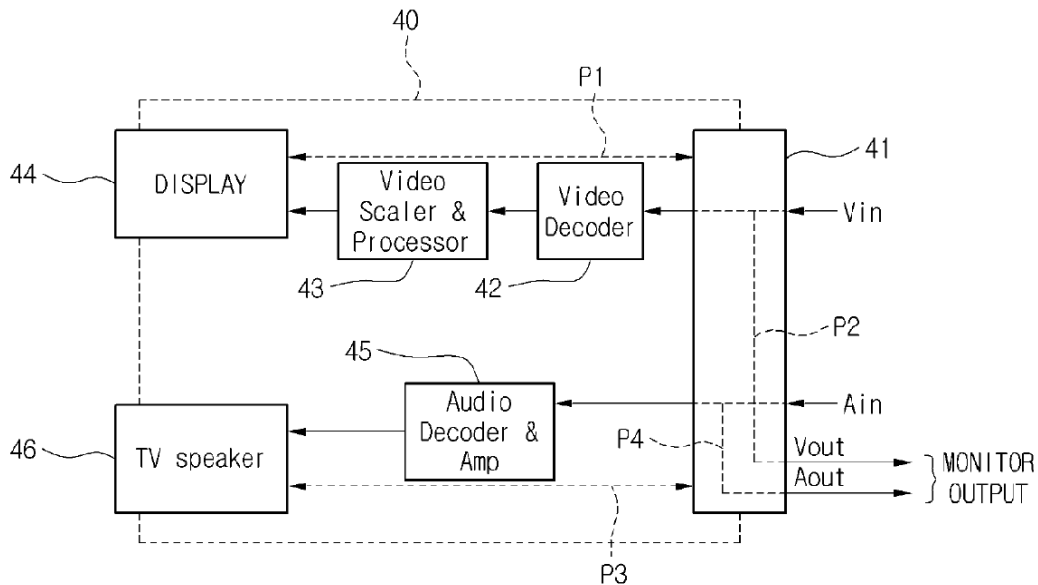
V. THE '803 PATENT

A. Summary of the '803 Patent

The '803 patent, entitled “Audio and Video Synchronizing Apparatus and Method” issued from an application filed on April 10, 2006. This application claims priority to a Korean patent application filed on April 15, 2005. Ex. 1001 at (30).

At the time of the invention of the '803 patent, a television or a set top (cable) box used with a television, predominantly received encoded video and audio signals from broadcast TV, a cable provider, or a satellite provider. Ex. 1005 at ¶60. Referring to FIG. 3 of the '803 patent, it was known that unprocessed video signal Vin can be routed to a video decoder 42 through path P1 or to video output port Vout through path P2. The unprocessed audio signal Ain can be provided to decoder & amplifier 45 or routed to the audio output Aout through path P4. *Id.* at ¶-61.

FIG 3



Ex. 1001 at FIG.3.

Assuming the audio and video inputs of a VCR are connected to Vout and Aout, during VCR recording the video and audio signals as received by the television or STB will bypass the path P1 and the audio decoder & amplifier 45 and are routed directly to the video and audio outputs, Vout and Aout. Ex. 1005 at ¶62. When the Vin and Ain signals are to be reproduced by the display and speaker(s) of the television, the signals Vin follow path P1 to the video decoder 41 and the signals Ain are provided as inputs to the audio decoder & amplifier 45 to be processed for display on the display 44 of the TV and reproduction through the TV's speaker(s) 46. *Id.* at ¶63. In this case the signals Vin and Ain do not bypass video and audio processing as evident from Ex. 1001 FIG. 3. *Id.*

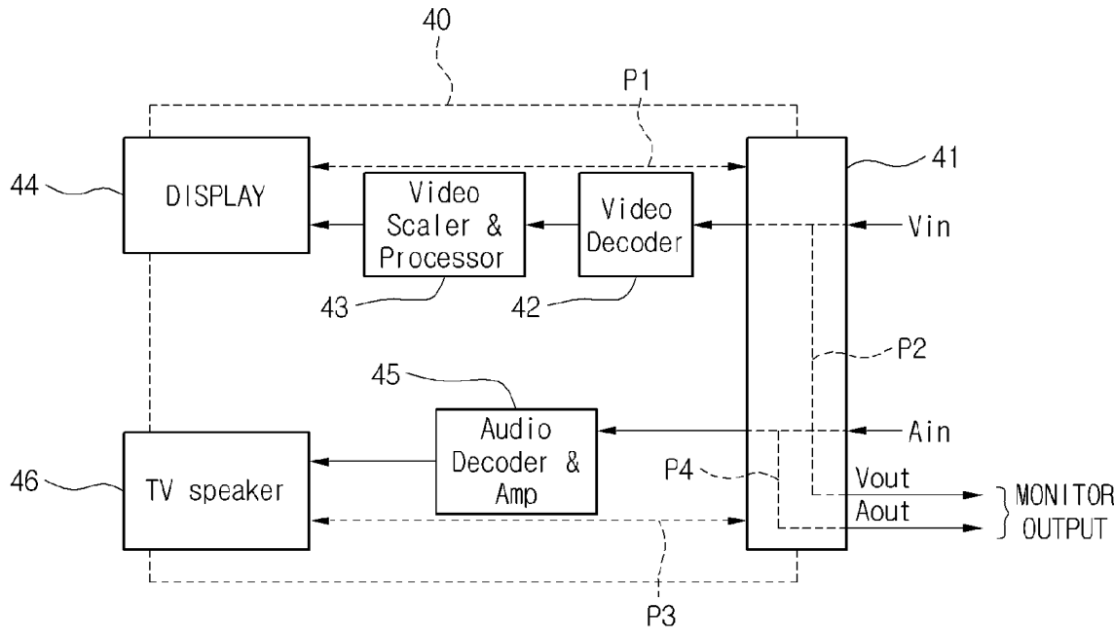
Referring further to FIG. 3, a digital TV includes “a video decoder 42 decoding the video signal inputted through the AV switch 41, a video scaler/processor 43 scaling the decoded video signal, converting a format of the signal and then outputting the signal, a display 44 displaying the video signal outputted from the video scaler/processor 43, 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.” Ex. 1001 at 4:8-21; Ex. 1005 at ¶64. Instead of a VCR, the signals Aout can be provided to an external audio amplifier or device (sound bar for example) to enhance the sound quality beyond the sound from only the speaker(s) of the television. Ex. 1005 at ¶65.

When a user connects an external audio device to the audio outputs Aout and views a program on the TV screen, synchronization between the displayed images and the sound from the audio device/remote speaker must be achieved otherwise “the user may have to put up with inconvenience of uncoincident lip-sync when viewing an image through a digital TV while listening to a sound through an audio device by connecting the audio device to the TV.” Ex. 1001 at 6:60-64; Ex. 1005 at ¶66. One reason is because “it takes relatively long time for the digital TV to process the digital video signal as compared to the time it takes to process the audio signal.” Ex, 1001 at 2:8-10; Ex. 1005 at ¶66.

The '803 patent relates to resolving synchronization issues that arise when different devices having different audio processing capabilities can be connected to Vout and Aout. Ex. 1005 at ¶67. The processing capabilities or limitations of the connected device dictate whether processed or unprocessed audio signals are appropriate inputs to the external devices. *Id.* For example, to ensure audio synchronization of an external audio device/speaker with the video being displayed on the screen of the television the processed audio signals provided to the TV speakers 46 must also be provided to an external speaker connected to Aout to avoid “uncoincident lip-sync.” *Id.* The solution provided by the '803 patent is to (1) identify the type of external device that is coupled to Vout or Aout and either (2) bypass audio processing if such processing should not be done or is performed internally by the external device, or (3) provide processed audio signals to the external device delayed to match the video displayed on the TV to avoid “uncoincident lip-sync” during reproduction of sound on an external audio device (a speaker). *Id.* at ¶68. As explained below with reference to Boudreau et al., the prior art had already recognized and solved this issue in a manner that renders obvious the invention of the '803 patent as claimed. *Id.*

FIG. 3 of the '803 patent illustrates an audio and video processing unit in a digital TV. Ex. 1001 at 3:55-56; Ex. 1005 at ¶69.

FIG. 3



Ex. 1001, Fig. 3.

A digital TV includes an AV switch 41 inputting a video signal (Vin) and an audio signal (Ain), a video decoder 42 and a scaler/processor 43 converting the video signal and outputting it, a TV display 44, an audio decoder/amplifier 45, and a TV speaker 46. Ex. 1001 at 4:3-15; Ex. 1005 at ¶70.

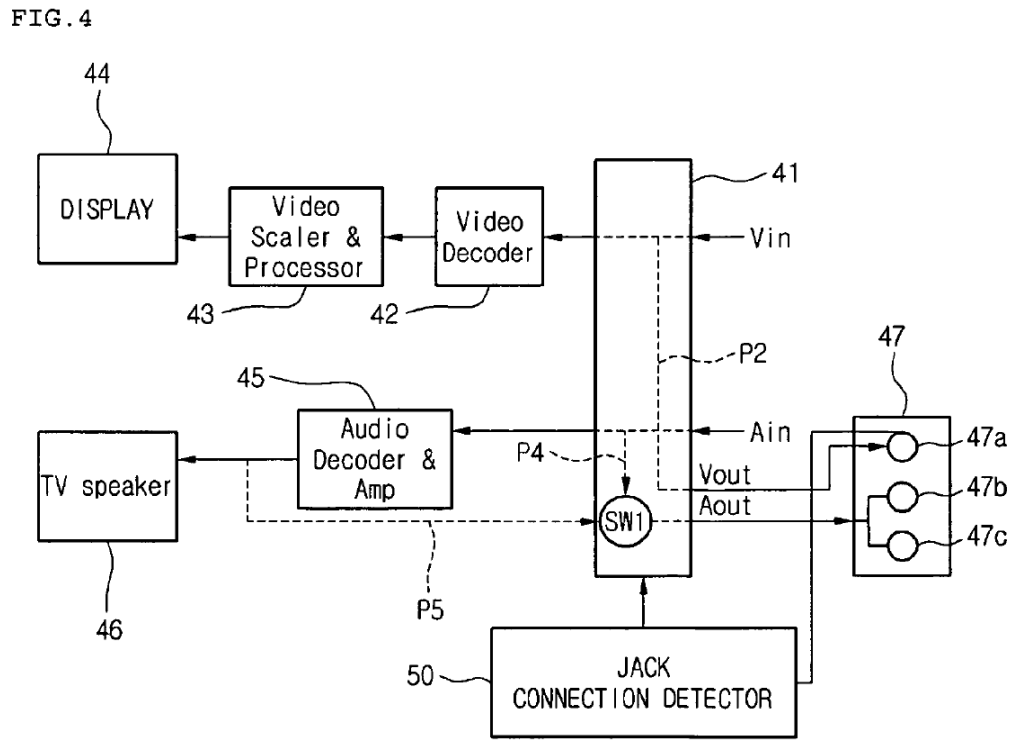
The AV switch 41 controls processing paths of the audio signal and the video signal within the signal processing system. Ex. 1005 at ¶71. The video signal (Vin) and the audio signal (Ain) are, for example, received broadcasting signals, audio and video signals inputted from an external device, or audio and video

signals from, for example, a VCR. Ex. 1001 at 4:16-21; Ex. 1005 at ¶71. The time required to process the video signal is longer than the time required to process the audio signal. Therefore, the audio signal is delayed synchronizing the video signal and audio signal provided to the display 44 and speaker(s) 46, respectively. Ex. 1001 at 4:46-58; Ex. 1005 at ¶71.

Vin and Ain can also be directly routed by the AV switch 41 to monitor outputs Vout and Aout, respectively. *Id.* at ¶72. This is shown in paths P2 and P4 in Fig. 3. *Id.* In such an instance the signals provided to the monitor outputs bypass the video and audio processing circuitry and are unaffected by the above-described signal delays. *Id.* Aout and Vout are synchronized at the monitor output ports. Ex. 1001 at 5:33-39; Ex. 1005 at ¶72.

The video signal of the second video path (P2) is synchronized with the audio signal of the second audio path (P4), but the video signal of the first video path (P1) is not synchronized with the audio signal of the second audio path (P4). Ex. 1005 at ¶73. Likewise, the audio signal outputted to the TV speaker 46 is not synchronized with the audio signal of the second audio path (P4). *Id.* Consequently, an audio system connected to the monitor output port to listen to sound will not be synchronized with images from the TV screen. Ex. 1001 at 5:45-54; Ex. 1005 at ¶73.

Fig. 4 shows a system according to the invention of the '803 patent for also synchronizing an audio signal with a video signal when a user views an image through a TV screen while listening to an external audio system connected to the monitor output port. Ex. 1001 at 5:65-6:3; Ex. 1005 at ¶74.



Ex. 1001, Fig. 4.

A third audio path (P5) is provided between an output port of the audio decoder/amplifier 45 to Aout. Ex. 1001 at 6:4-17; Ex. 1005 at ¶75. The third audio path (P5) and the second audio path (P4) are selectively connected to Aout through a selection switch (SW1) to first and second channel audio ports 47b and 47c. *Id.*

SW1 is switched by detecting whether or not an external device connected to the monitor connection port is an audio device. Jack connection detector 50 is connected to the video port 47a to detect low (or high) signals according to whether an external device is connected to the video port 47a through a video cable according to a well-known external input automatic detecting circuit for a TV. Ex. 1001 at 6:39-56; Ex. 1005 at ¶76.

If an external device is connected to the video port 47a by an video cable, it is determined that the external device is an audio/video device such as an external AV recording device. Ex. 1001 at 6:57-65; Ex. 1005 at ¶77. If the external device is not connected to the video port 47a by the video cable, the external device is assumed to be an audio device such as an audio receiver or an external speaker. *Id.*

If only an audio device is connected as an external device, the selection switch (SW1) selects the third audio path (P5) through the jack connection detector 50 and transmits an audio signal to the monitor output port 47 so that the video signal outputted to the display 44 and the audio signal outputted to the external audio device connected to the monitor output port 47 are synchronized and then outputted. Ex. 1001 at 7:9-26; Ex. 1005 at ¶78. Note that the audio signal is also still processed and outputted to the TV speaker 46 and the TV viewer would mute the TV audio for the best audio quality experience. *Id.*

If an audio/video device is connected as an external device, the selection switch (SW1) selects the second audio path (P4) according to the jack connection detector 50 and signals are passed from the AV switch 41 to port Aout and port Vout. Ex. 1001 at 7:9-26; Ex. 1005 at ¶79. Therefore, the external audio/video device connected to the monitor output port 47 receives synchronized audio and video signals. *Id.*

B. Level of Ordinary Skill in the Art

A person of ordinary skill in the art, at the time the '803 patent was filed, would have had at least an undergraduate degree in electrical or computer engineering or closely related scientific field, or similar advanced post-graduate education, and at least two years of experience with audio and video synchronization. Ex. 1005 at ¶¶54-58. Such a person of ordinary skill in the art would have been capable of understanding the '803 patent and the prior art references discussed herein. *Id.* at ¶57.

C. Prosecution History

The '803 patent issued on July 19, 2011, from U.S. Application No. 11/401,798 filed April 10, 2006, which claims priority to the KR 10-2005-0031350, filed April 15, 2005. Ex. 1001, Face of Patent.

On September 3, 2009, the Office issued a first Non-Final Rejection (Ex. 1012) under §102 based on KR10-2006-0090099 (IDS provided by Applicant) and

objection to drawings that Figures 1-3 should be designated as “Prior Art.” Ex.

1012 at pp. 2-5. The Applicant did not respond on the merits, but rather argued in an Amendment filed on October 13, 2009 (Ex. 1013) that the applied reference was disqualified as prior art under §102 because the filing date 4/10/2006 of the application is before the published date 8/10/2006 of the applied reference. *Id.* at pp. 7-8.

On January 6, 2010, the Office issued a second Non-Final Rejection (Ex. 1014) under §102 based on AAPA (Applicant Admitted Prior Art -- FIG. 3 of the '803 patent), and a rejection under §103 over the AAPA FIG. 3 combined with Maehara et al. (US 2005/0147129). Ex. 1014 at pp. 2-5. In a responsive Amendment filed on April 5, 2010 (Ex. 1015) the Applicant argued that FIG. 3 of the application was inadvertently labeled as “Related Art,” and therefore FIG. 3 is not AAPA. *Id.* at p. 7.

The Examiner obviously disagreed with the applicant regarding FIG. 3, and in a Final Office Action dated July 12, 2010 (Ex. 1016) maintained the position that FIG. 3 is AAPA and rejected the claims under §102 based on AAPA FIG. 3 and under §103 over the AAPA FIG. 3 and Maehara et al. (US 2005/0147129). Ex. 1016 at pp. 2-5. In a response filed October 11, 2020 (Ex. 1017) the Applicant amended claim 1 to include the limitation “wherein the video signal is output to the display device of the video processing equipment and the audio signal that is

synchronized with the video signal is output to the external device simultaneously”

and amended independent claims 6-10 and 16 similarly. Ex. 1017 at pp. 2-6.

In an Office Action dated November 15, 2010 (Ex. 1018) the Examiner again rejected the claims, this time adding new reference Tanaka (US 7,054,544). Ex. 1018 at p. 2. That is, the Office issued a Non-Final Rejection under §102 based on Tanaka and a rejection under §103 over Tanaka in view of Maehara et al. (US 2005/0147129). *Id.* at pp. 2-4. Given the new grounds for rejection the Examiner noted that the prior remarks of Applicant were moot. *Id.* at p. 5. In a response filed on March 15, 2011 (Ex. 1019) the Applicant amended claim 1 to include “wherein the switching unit selects 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 selects a second audio signal output from the audio signal processing unit as the at least an audio signal for output to the outputting unit” and amended independent claims 6-10 and 16 similarly. Ex. 1019 at pp. 2-6. On April 1, 2011, the Office allowed the claims in response to the amendment.

VI. THE PRIOR ART - U.S . PUBLICATION NO. 2004/0117858 TO BOUDREAU ET AL.

U.S. Pub. No. 2004/0117858 to Boudreau et. al (Exhibit 1003) indicates on its face that it was filed on December 12, 2002, as patent application Ser. No. 10/318,116 and was published on June 17, 2004. Boudreau et al. qualifies as prior

art under pre-AIA 35 U.S.C. §§ 102(a),(b) and (e) because its publication date (June 17, 2004) is before the earliest priority date of the '803 patent (April 15, 2005) and more than one year before the U.S. filing date (April 10, 2006) of the '803 patent. Boudreau et. al also does not have common inventorship or assignment with the '803 patent.

As noted in Section V.C., *infra*, the '803 patent was subject to a total of eight Office Actions and Amendments in its path to issuance. It was not until the following or similar limitation was added to all independent claims in applicant's fourth Amendment (ex. 1019) that the Examiner allowed the claims:

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.

In short, this limitation, which resulted in allowance of the claims, provides that either audio that bypasses processing in the television or audio that has been processed in the television is output to an external device (speaker). As explained below and in Section VII.A.j), *supra*, this is clearly disclosed in Boudreau et al.

FIG. 1 of Boudreau et al. is a block diagram of a subscriber television system (STS) 10. Ex. 1003 at [0020]. One example of an STS at the time is cable television system.

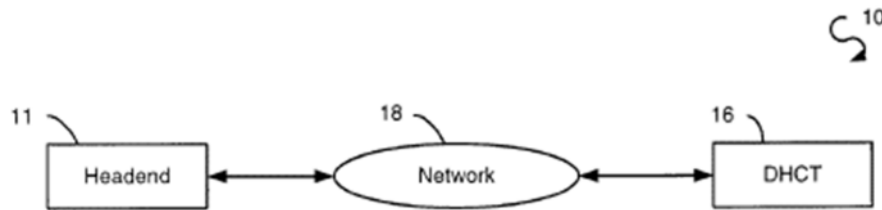


FIG. 1

Ex. 1003, FIG. 1.

The STS 10 includes a headend 11 and a digital home communication terminal (DHCT) 16 coupled together via a communications network 18 such as cable, satellite and terrestrial-broadcast systems, and local TV stations. Ex. 1003 at [0022]; Ex. 1005 at ¶91. The headend 11 receives content from one or more content providers and can store and process the content before transmitting it to the DHCT 16 via the network 18. *Id.*

The DHCT 16 may be a stand-alone unit, e.g., a set top box, or integrated into a television set. Ex. 1003 at [0021]; Ex. 1005 at ¶92. The DHCT 16 receives

content (video, audio and/or other data) from the headend 11 through the network 18. *Id.*

In an embodiment shown in FIG. 2A, Boudreau et al. discloses the combined use of a DHCT 16, television, and a doll 210 embodied as an action figure of a character of a television show viewable on the television. Ex. 1003 at [0023]; Ex. 1005 at ¶93. The doll 210 includes external circuitry 200 and an audio speaker. Ex. 1003 at [0024]; Ex. 1005 at ¶93.

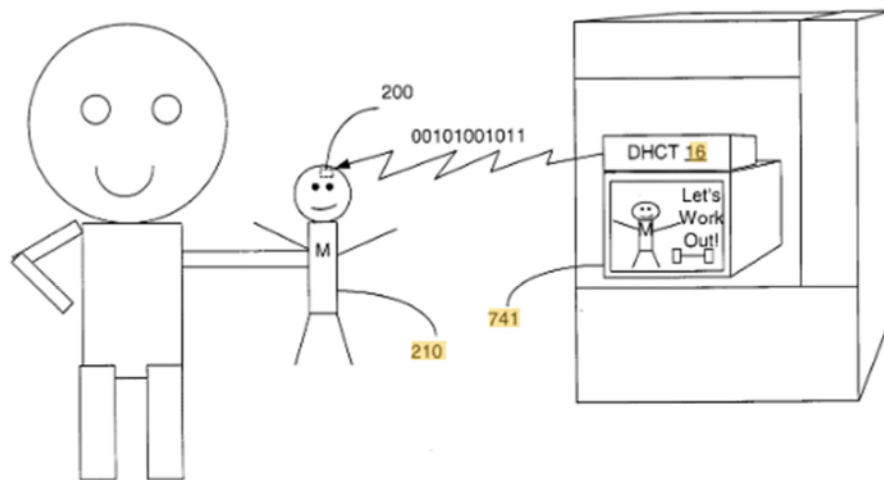


FIG. 2A

Ex. 1003 at FIG. 2A.

In this embodiment, the DHCT 16 and the external device circuitry 200 can be connected physically, such as by cables, or wirelessly. Ex. 1003 at [0007], [0012] and [0093-94]; Ex. 1005 at ¶94. The doll 210 (which includes the external

device circuitry 200) includes the functions of a remote audio device/speaker. Ex. 1003 at [0024]; Ex. 1005 at ¶94.

The presentation of content displayed on the television set can be synchronized with the related content presented at the external device. Ex. 1003 at [0016]; Ex. 1005 at ¶95. For example, the external device can be embodied in the form of an action figure corresponding to a like character on a television show. *Id.* The action figure can include functionality for providing audio related to the show. *Id.*

Just as the '803 patent is directed to avoid the “inconvenience of uncoincident lip-sync” when viewing an image through a digital TV while listening to a sound through an external speaker [Ex. 1001 at 5:56-64], Boudreau et al. emphasizes the need for synchronization of the sound from the speaker in the action figure 210 with both the video displayed on the television and the audio from the speaker(s) in the television. Ex. 1005 at ¶96.

In one implementation, whenever the character on the television show speaks during a particular episode, his or her voice is heard emanating from the action figure associated with the character, alone or in conjunction with the sound (i.e., the character's voice) emanating from the television set. Ex. 1003 at [0016].

Boudreau et. al. teaches proper “lip synching between the audio content presented in the external device and the corresponding video presented on TV (or between the video and the audio in the presentation on TV).” Ex. 1003. at [0044]; Ex. 1005 at ¶97.

FIG. 2A, reproduced below, shows the combination of a TV 741, processing system (DHCT) 16, and an external device 200 (the action figure), which, as will be discussed below, receives processed and/or bypassed audio from the TV processing system to be reproduced by the speaker in the external device 200. Ex. 1003 at [0023]; Ex. 1005 at ¶98.

The external device circuitry 700 of the external device (action figure) 200 is shown in FIG. 7B to include a processor 703, memory 704 for storing downloaded content and executable instructions, a speaker 706, an audio decoder 705, and other components known to POSITA. Ex. 1003 at [0097], FIG. 7B; Ex. 1005 at ¶99.

Two types of external devices 200 are disclosed. Ex. 1005 at ¶100. In a first type (referred to herein as “type 1”), the external device 200 includes decoding functionality. *Id.* In this embodiment, audio data transmitted to the external device 200 from the DHCT 16 bypasses the decoding processing functionality within the DHCT 16 and is provided to the external device 200 without decoding processing by the DHCT 16. Ex. 1003 at [0065]; Ex. 1005 at ¶100. This is the type of operation disclosed in the preferred embodiment of the ’803 patent in which

signals from Vin and Ain bypass video and audio processing and are directly routed to outputs Vout and Aout because a video device like a VCR is detected as being coupled to Vout. Ex. 1005 at ¶100.

A second type of external device 200 (referred to herein as “type 2”) does not include video and audio decoding functionality and in order to synchronize the audio from the speaker of the action figure 210 with the video and audio provided by the television 741 the audio is decoded and processed within the DHCT 16 and the processed audio is provided to the speaker(s) of the television 741 and to the external device 200. Ex. 1003 at [0063]; Ex. 1005 at ¶101.

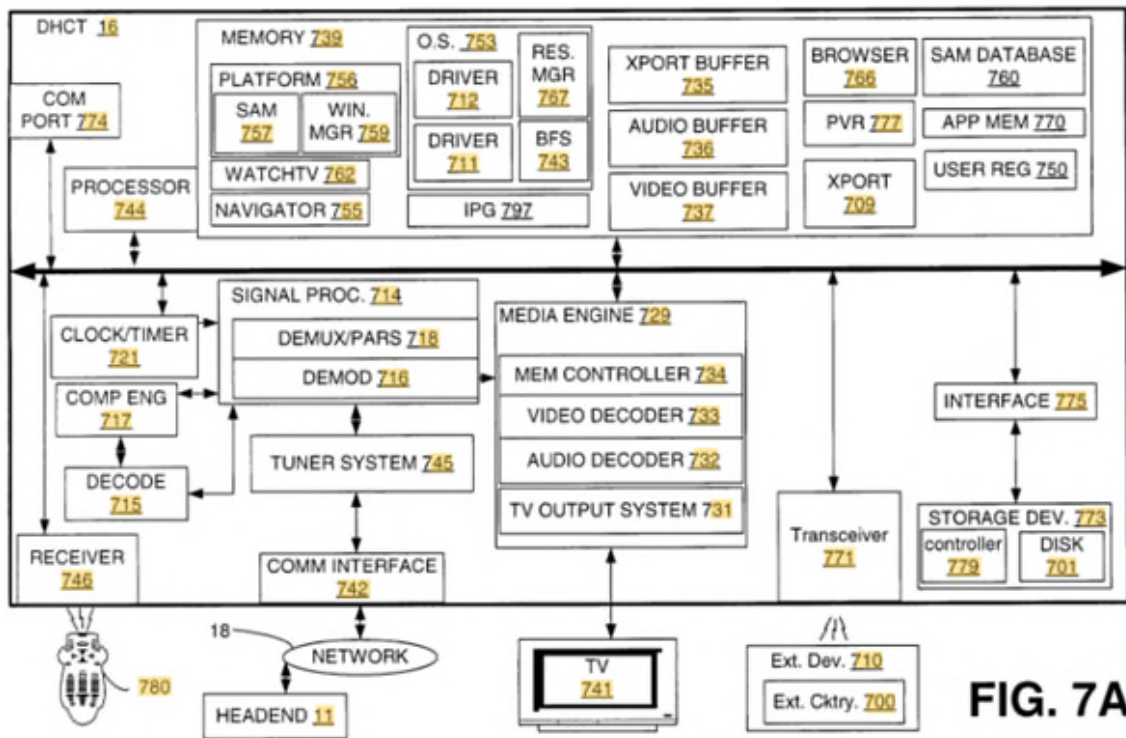
The DHCT 16 determines if the external device is a type 1 device or type 2 device from data provided by the external device to inform the DHCT 16 of the capabilities of the external device with respect to audio decoding as explained by Boudreau et al.:

For example, determinations as to when an external device includes decoding functionality can be made based on the received information (i.e., received from the external device 710).

Ex. 1003 at [0065]; Ex. 1005 at ¶102.

FIG. 7A reproduced below shows an embodiment of the DHCT 16 in which audio signals can bypass the audio processing of the processing system 16 and are outputted to the external device 710 through an output system 731, i.e., “bypass

one or more elements of the signal processing system 714 and are forwarded directly to the output system 731 (or transceiver 771).” Ex. 1003 at [0061]; Ex. 1005 at ¶103. The audio and video can be output for “display on TV 741 or output to the external device 710.” Ex. 1003 at [0056]; Ex. 1005 at ¶103. Furthermore, “instead of routing the audio to the television set 741, the audio is routed to the external device 710, in some implementations. *Id.*

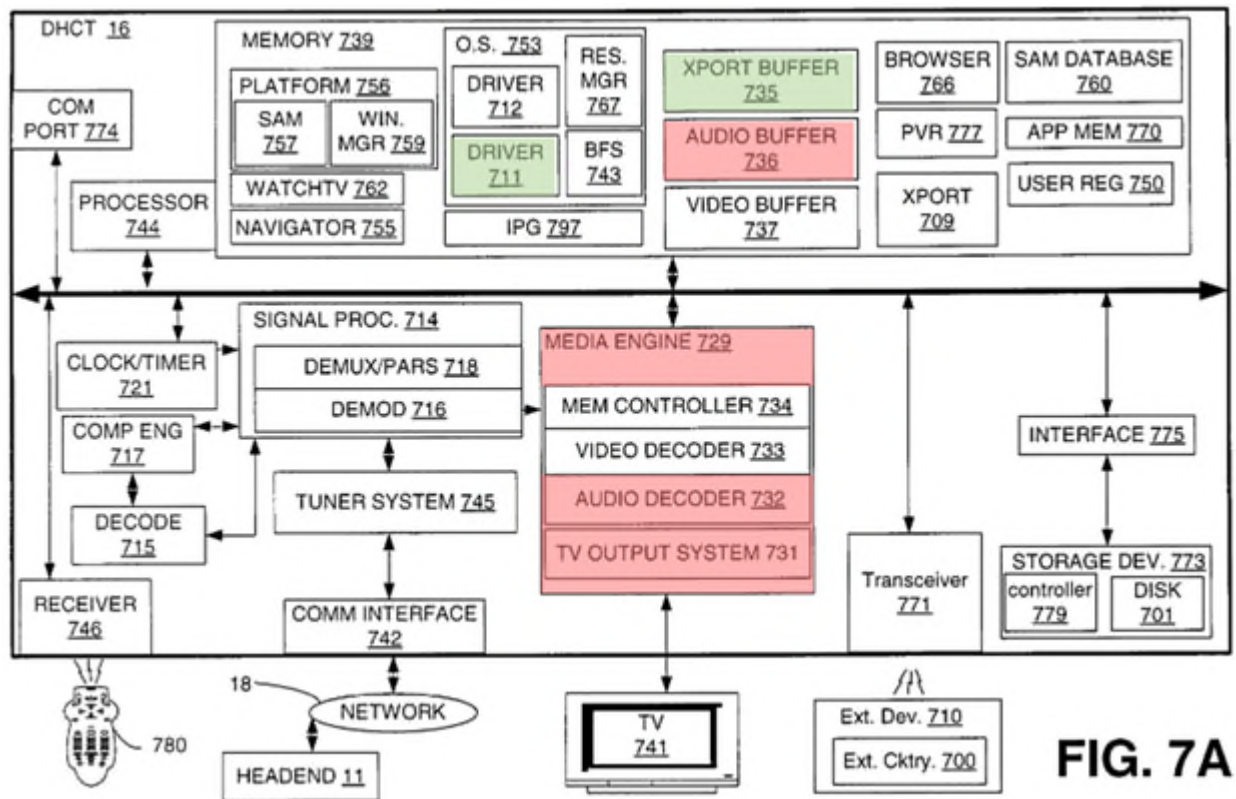


Ex. 1003 at FIG. 7A (annotated).

Referring to Fig. 7A, synchronized video and audio signals are received from the headend 11 through the network by communication interface 742, passed to tuner system 745, and sent to the signal processing system 714 that separates the

audio signal in preparation for audio processing. The audio is not processed until after it is demodulated and demultiplexed into an audio-only signal. Ex. 1005 at ¶104. Alternatively, audio signals ready for processing can be received from an external source through transceiver 771, Ex. 1003 at [0052], as was explained in the FIG 8 discussion above. Ex. 1005 at ¶104. After the audio signal is ready for audio processing after DEMUX/PARS 716 (input via the network) or after driver 711 (external input), the audio signals can take two paths within the DCHT 16. Ex. 1005 at ¶¶104-106.

The first path (for a type 1 external device) is highlighted in green in annotated Fig. 7A below. The first path bypasses audio processing and is “buffered in the XPORT buffer 735 [without being decoded], routed using the transceiver driver 711 to the local cache for the transceiver 771, and then transmitted to the external device 710, thus bypassing the DHCT decoding functionality due to decoding functionality resident in the external device 710.” Ex. 1003 at [0058]; Ex. 1005 at ¶107. This enables proper lip-sync with the video displayed on the TV and the audio heard from the external device. Ex. 1003 at [0044]; Ex. 1005 at ¶107.



Ex. 1003 at FIG. 7A (annotated).

A second path (for a type 2 device) is highlighted in red. After the audio signal is ready for audio processing (from signal processing system 714 or transceiver 771), audio processing occurs in the audio buffer 736, and is presented as an input to the media engine 729 for decompression by the audio decoder and decompression engine 732 and routed to the audio output through transceiver 771 (or the TV Output System 731). Ex. 1005 at ¶108. The processed audio that is provided to the external device 710 is reproduced in a manner synchronized (proper lip-sync) with the audio and video of the television 741. Ex. 1003 at[0060]; Ex. 1005 at ¶108. Audio signals to be sent to a type 1 external device with audio

decoding and processing capability, e.g., the remote speaker of the action figure 200, are not processed by the components highlighted in red in path 2. Ex. 1005 at ¶108.

The DCHT 16 makes the determinations of the type or kind of the external device and performs or bypasses audio processing operations in the DHCT 16 accordingly. Ex. 1003 at [0058], [0065]; Ex. 1005 at ¶109. Such “determinations as to when an external device includes decoding functionality can be made based on the received information (i.e., received from the external device 710) that is loaded into the transceiver registers. *Id.* The registers can include a device identification that the transceiver driver 711 or operating system 753 can use to determine the characteristics from an internal look up table (not shown), or one or more flag bits received into the registers are recognized by the transceiver driver 711 as indicative of decoding functionality or not.” *Id.* In this manner audio signals can “bypass one or more elements of the signal processing system 714 [and] are forwarded directly to the output system 731 (or transceiver 771).” Ex. 1003 at [0061]; Ex. 1005 at ¶110. This routing is based upon the type or kind of the external device. i.e., whether it has the capability to decode (process) audio signals. *Id.*

An XPORT application 709 controls the multimedia system functionality of the DHCT 16 (Ex. 1003 at [0072]) including providing AV switching

functionality. Ex. 1005 at ¶111. In the preferred embodiment(s), the XPORT application 709 is implemented in software or firmware that is stored in a memory 739 and that is executed by a suitable instruction execution system. Ex. 1003 at [0102]; Ex. 1005 at ¶111. As Boudreau et al. further explains: “the XPORT application 709 cooperates with” the transceiver driver 711 “to decide whether to route [switch] the content from the XPORT buffer 735 to decoding functionality in the DHCT 16 and/or to process (in cooperation with the transceiver driver 711) for transmittal to the external device 710.” Ex. 1003 at [0073], emphasis added; Ex. 1005 at ¶111.

However, the XPORT application 709 can be implemented in hardware, software, firmware, or a combination thereof. Ex. 1005 at ¶112.

The XPORT application 709 can be implemented in hardware, software, firmware, or a combination thereof. In the preferred embodiment(s), the XPORT application 709 is implemented in software or firmware that is stored in a memory and that is executed by a suitable instruction execution system. If implemented in hardware, as in an alternative embodiment, the XPORT application 709 may be implemented with any or a combination of the following technologies, which are all well known in the art: a discrete logic circuit(s) having logic gates for implementing logic functions upon

data signals, an application specific integrated circuit (ASIC) having appropriate combinational logic gates, a programmable gate array(s) (PGA), a field programmable gate array (FPGA), etc.

Ex. 1003 at [0102].

At the time of the '803 patent's priority, digital video/audio transmission was prevalent and, as described by Boudreau et al.'s preferred embodiment, AV processing functionality was implemented with digital circuits and processors running software applications. Ex. 1003 at [0003]; Ex. 1005 at ¶113. This was preferred over using hardware switches because the audio and video signals already were available in digital form because that was required for other digital video/audio processing functions, i.e. decoding, decompressing, etc. Ex. 1005 at ¶113. If a "hardware" switch (supporting analog and digital input and output ports) was to be used in a digital TV or Set Top Box at the time of the '803 patents' priority date, it would have required significantly more circuitry and cost. *Id.* Thus, the XPORT application acts as the AV switch of the '803 patent because the XPORT application is for "controlling the processing paths of the audio signal and the video signal." Ex. 1001 at 4:16-17; Ex. 1005 at ¶113.

The XPORT application 709 provides 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 or download to the external device 710 in association with the presentation of content on the television set 741. Ex. 1005 at ¶114. The XPORT application 709 provides this functionality in cooperation with other components of the DHCT 16, the headend 11, and the external device 710. Ex. 1003. at [0072]; Ex. 1005 at ¶114.

The characteristics of the external device 710 (e.g., decoding functionality, etc.) may be acquired by the transceiver driver 711 with which the XPORT application 709 cooperates to decide whether to route the content from the XPORT buffer 735 to decoding functionality in the DHCT 16 or to the transceiver driver 711 for transmittal to the external device 710. Ex. 1003 at [0073]; Ex. 1005 at ¶115.

The XPORT application 709, upon being alerted to the presence of the external device 710, awaits information from the transceiver driver 711 such as the identity of the external device 710 and corresponding performance characteristics, such as the fact that the external device 710 has decoding functionality for audio signals (e.g., as determined by flag bit or bits, unique code, etc.). Ex. 1003 at [0095]; Ex. 1005 at ¶116.

**VII. CLAIMS 1-18 OF THE '803 PATENT ARE UNPATENTABLE
UNDER 35 U.S.C. §103 IN VIEW OF BOUDREAU ET AL.**

The proposed grounds of unpatentability below identifies the specific portions of the evidence that support each ground.

The '803 patent includes 18 total claims of which claims 1 and 6-8 are independent apparatus claims and independent claims 10 and 16 are method versions of apparatus claims. Claims 1, and 8-10 include a limitation requiring detecting, determining, or switching according to “a kind of external device.” Claims 6, 7, and 18 do not include that limitation.

A. Independent Claim 1

- a) Limitation 1[pre]: “An audio and video synchronizing apparatus comprising”

Boudreau et al. describes an audio and video synchronizing apparatus, such as DCHT 16, which connects to a TV 741 to display video and provide associated audio such that the video on the TV 741 is synchronized with audio played from the TV's speaker or from the external audio device/speaker. Ex. 1003 at [0023]-[0024]; Fig. 2A; Ex. 1005 at ¶117.

Video on the TV 741 is synchronized with audio played from a speaker in the external device e.g., doll 210, so that the sound from the speaker in the external doll 210 is heard in synchronization with the video displayed on the TV 741. Ex. 1003 at [0023]-[0024]; Fig. 2A; Ex. 1005 at ¶118. As described by Boudreau et al.,

“audio is heard emanating from the television set 741 (or from remote speakers for the television set 741) and from the doll 210 (or from only the doll 210).... the audio content... [is] presented in synchronization with the corresponding video.” Ex. 1003 at [0024]; Ex. 1005 at ¶¶117-118.

Boudreau et al. discloses element 1[pre]. Ex. 1005 at ¶119.

- b) Limitation 1[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”

The Boudreau et al. system includes a video signal processing unit processing a video signal that is provided to a television for display. Ex. 1005 at ¶120. The combination of the (television) display device 741 and the DHCT 16 comprises the system that is a display device of video processing equipment. *Id.* “While many conventional DHCTs are stand-alone devices that are externally connected to a television, a DHCT and/or its functionality may be integrated into a television ... as will be appreciated by those of ordinary skill in the art.” Ex. 1003 at [0003]; *See* FIG. 7A. “The DHCT 16 includes a signal processing system 714, which comprises a demodulating system 716 and a transport demultiplexing and parsing system 718 (herein demux/parse system 718) to process broadcast content.... processing of the input digitized pictures and their respective digitized audio.... presented as input to the media engine 729 for decompression by video decompression engine 733 and audio decompression engine 732 and then output

for display on the TV 741.” *Id.* at [0053]-[0058]. The demodulating system 716, transport demultiplexing and parsing system 718, media engine 729, and media engine 729 process video signals to provide signals that can be displayed on the TV 741. Ex. 1005 at ¶¶120-121.

Boudreau et al. discloses element 1[a]. Ex. 1005 at ¶122.

- c) Limitation 1[b]: “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;”

Boudreau et al. teaches processing of audio signals that are synchronized with the video signals being displayed on the television. Ex. 1005 at ¶123; *See* Ex. 1003 at FIG. 7A. “The DHCT 16 includes a “signal processing system 714, which comprises a demodulating system 716 and a transport demultiplexing and parsing system 718 (herein demux/parse system 718) to process broadcast content.... processing of the input digitized pictures and their respective digitized audio.... presented as input to the media engine 729 for decompression by video decompression engine 733 and audio decompression engine 732 and then output for display on the TV 741.” Ex. 1003 at [0053]-[0058].

Furthermore, Boudreau et al. teaches that the audio signal is synchronized with the video signal, as a POSITA would recognize was standard practice, “MPEG picture 604 corresponds to a picture on a television screen in which each

pixel of the television screen has been illuminated, and an audio elementary stream (not shown) is made up of multiple audio frames, some of which are synchronized with the MPEG pictures for presentation.” Ex. 1003 at [0043]; Ex. 1005 at ¶124. Additionally, Boudreau et al. teaches “content is to be presented at the external device 710 to provide synchronized audio with the related content presented on the television set 741”. Ex. 1003 at [0069]; Ex. 1005 at ¶¶123-124.

Boudreau et al teaches limitation 1[b]. Ex. 1005 at ¶125.

- d) Limitation 1[c]: “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;”

Boudreau et al. teaches this limitation, in an embodiment where the switching unit is implemented in software (the XPORT application) routing signals input to the XPORT buffer 735, Audio buffer 736, and Video buffer 737, audio and video processing units, and selecting video and audio outputs to external device 710. Ex. 1005 at ¶126. “The characteristics of the external device 710 (e.g., decoding functionality, etc.) may be acquired by the transceiver driver 711, which the XPORT application 709 cooperates with to decide whether to route the content from the XPORT buffer 735 to decoding functionality in the DHCT 16 and/or to

process (in cooperation with the transceiver driver 711) for transmittal to the external device 710.” Ex. 1003 at [0073]; Ex. 1005 at ¶126.

Boudreau et al. teaches limitation 1[c]. Ex. 1005 at ¶127.

- i) Limitation 1[d]: “an outputting unit outputting the selected at least an audio signal to the external device; and”

Boudreau et al. teaches an outputting unit that outputs the selected at least an audio signal to the external device. Ex. 1005 at ¶128. “The DHCT 16 also includes a transceiver 771 that is driven by a transceiver driver 711 in the operating system 753 that preferably formats the signal to enable communication to (and from) an external device 710.” Ex. 1003 at [0052]. The audio signal is “output by the signal processing system 714, buffered in video, audio, and/or XPORT buffers 735-737, and presented as input to the media engine 729 for decompression by video decompression engine 733 and audio decompression engine 732 and then output for display on the TV 741.” Ex. 1003 at [0058]; Ex. 1005 at ¶128. A POSITA would understand that “output for display on the TV” includes audio because of the description of the signal flow including the audio decompression engine 732. Ex. 1005 at ¶128. Also, Boudreau et al. teaches that the audio is output to the external device: “The show host barks out, “Let's work out”, and this audio is heard emanating from the television set 741 (or from remote speakers for the

television set 741) and from the doll 210 (or from only the doll 210).” Ex. 1003 at [0024], Ex. 1005 at ¶128.

Boudreau et al. teaches limitation 1[d]. Ex. 1005 at ¶129.

- j) Limitation 1[e]: “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.”

The ’803 patent was allowed following the addition of the underlined or similar limitations to each independent claim. Ex. 1005 at ¶130. Boudreau et al. teaches all aspects of this limitation. *Id.*

The following excerpts 1-4 teach or suggest the language “output selecting unit controlling the switching unit according to a kind of the external device.” Ex. 1005 at ¶130.

- (1) “one example implementation for detecting (according to a kind of the external device) an external device and downloading related content to the external device is described, in accordance with one embodiment of the invention.” Ex.1003 at [0018],
- (2) “detection of the external device 710 may be performed by polling mechanisms or interrupt mechanisms associated with the

processor 744, which the XPORT application 709, as an application that has registered to receive and/or transmit information from a receiving port, uses to prepare for receiving content from a data stream. The characteristics of the external device 710 (e.g., decoding functionality, etc.) may be acquired by the transceiver driver 711, which the XPORT application 709 cooperates with to decide whether to route the content from the XPORT buffer 735 to decoding functionality in the DHCT 16 and/or to process (in cooperation with the transceiver driver 711) for transmittal to the external device 710.”

Id. at [0073],

(3) “In an alternate embodiment, the DHCT 16 is notified of the external device 710 via a user interface displayed on the television 741, and by the user entering information via his or her remote control device 780, as described previously.” *Id.* at [0073], and

(4) “In other embodiments, the XPORT application 709, upon receiving certain triggers in the data stream (e.g., indicating associated data streams carrying related content available for downloading to the external device 710), can cause the polling mechanisms and information acquiring mechanisms to be activated as opposed to taking a more passive role in the process.” *Id.* at [0073].

Boudreau et al. also teaches or suggest the underlined portion of this limitation that 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. Ex. 1005 at ¶131. This is explained as follows: “XPORT application 709 cooperates with to decide whether to route the content from the XPORT buffer 735 to decoding functionality in the DHCT 16 and/or to process (in cooperation with the transceiver driver 711) for transmittal to the external device 710.” Ex. 1003 at [0073]; Ex. 1005 at ¶131. Further he explains that “the content designated for the external device 710 can be buffered in the XPORT buffer 735 and processed and routed using the transceiver driver 711 to the local cache for the transceiver 771, and then transmitted to the external device 710, thus bypassing the DHCT decoding functionality due to decoding functionality resident in the external device 710.” Ex. 1003 at [0058]; Ex. 1005 at ¶131. A POSITA would understand this to mean that the switching unit output can be either a first audio signal that bypasses audio processing functionality or a second audio signal that is processed by audio processing functionality. Ex. 1005 at ¶131.

There are other examples of either processing or bypassing the processing before output to the external device. Ex. 1005 at ¶132. For example: “The packetized compressed streams can be also output by the signal processing system 714, buffered to the video, audio, and/or XPORT buffers 735-737, and presented as input to the media engine 729 for decompression by the video decompression engine 733 and the audio decompression engine 732 (or bypassing the decoding functionality and processed for transport to the transceiver 771 for transmission to the external device 710).” Ex. 1003 at [0060]; Ex. 1005 at ¶132. Another example is: “analog signals (e.g., NTSC),” which a POSITA would have understood includes an audio signal, “that bypass one or more elements of the signal processing system 714 and are forwarded directly to the output system 731 (or transceiver 771).” Ex. 1003 at [0061]; Ex. 1005 at ¶132. Another teaching is: “In embodiments wherein an external device, such as the external device 710, includes decoding functionality, the video, audio, and/or other data comprising the content in the XPORT buffer 735 can bypass the decoding functionality of the media engine 729.” Ex. 1003 at [0065]; Ex. 1005 at ¶132. A POSITA can easily see that bypassing processing according to a kind of the external device is repeatedly taught by Boudreau et al. Ex. 1005 at ¶132.

Boudreau et al. teaches limitation 1[e]. Ex. 1005 at ¶133.

B. Claim 2: “The apparatus according to claim 1, further comprising a detector detecting the kind of the external device connected to the outputting unit.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 1, Limitation 1[e]. Ex. 1005 at ¶134.

C. Claim 3: “The apparatus according to claim 1, wherein the kind of the external device connected to the outputting unit is either an audio/video device or an audio device.”

Boudreau et al. describes detecting the kind of external device connected and cites an example of an audio device: “the XPORT application 709, upon being alerted to the presence of the external device 710, awaits information from the transceiver driver 711 such as the identity of the external device 710 and corresponding performance characteristics, such as the fact that the external device 710 has decoding functionality for audio.” Ex. 1003 at [0095]; Ex. 1005 at ¶135. “The show host barks out. ‘Let’s work out’, and this audio is heard emanating from the television set 741 (or from remote speakers for the television set 741) and from the doll 210 (of from only the doll 210).” Ex. 1003 at [0024]. A POSITA would understand that the detection and identification capabilities taught by Boudreau et al. is more general including not only an audio device as mentioned, but also an audio/video device, as well as more types of external devices connected to the outputting unit. Ex. 1005 at ¶135.

Boudreau et al. discloses the subject matter of this claim. *Id.*

D. Claim 4: “The apparatus according to claim 3, wherein the switching unit is controlled to select the second audio signal when it is determined that the external device connected to the outputting unit is the audio.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 1, Limitation 1[c] and Claim 3. Ex. 1005 at ¶136.

E. Claim 5: “The apparatus according to claim 1, wherein the kind of the external device connected to the outputting unit is determined according to whether the external device is connected to a video output port or an audio output port.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 3. Ex. 1005 at ¶137. Moreover, the DCHT 16 makes the determinations of the type or kind of the external device and performs or bypasses video and audio processing operations in the DHCT 16 accordingly. Ex. 1005 at ¶¶ 109,136. Such “determinations as to when an external device includes decoding functionality can be made based on the received information (i.e., received from the external device 710) that is loaded into the transceiver registers. The registers can include a device identification that the transceiver driver 711 or operating system 753 can use to determine the characteristics from an internal look up table (not shown), or one or more flag bits received into the registers are recognized by the transceiver driver 711 as indicative of decoding functionality or not.” Ex. 1003 at [0058], [0065]; Ex. 1005 at ¶¶ 109,136.

A POSITA would understand that the detection and identification capabilities taught by Boudreau et al. are more general and include determining whether the external device is connected to an external device capable of receiving video outputs or an external device capable of receiving only audio output. Ex. 1005 at ¶137. The subject matter of claim 5 would have been obvious from the teachings of Boudreau et al. *Id.*

F. Independent Claim 6

- a) Limitation 1[pre]: “An audio and video synchronizing apparatus comprising”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[pre]. Ex. 1005 at ¶138.

- b) Limitation 6[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[a]. *Id.* at ¶139.

- c) Limitation 6[b]: “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; and”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[b]. *Id.* at ¶140.

- d) Limitation 6[c]: “an output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment,”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[c]. *Id.* at ¶141.

- e) Limitation Claim 6[d]: “wherein the output selecting unit selects a first audio signal that bypasses the audio signal that is input to the audio signal processing unit as the audio signal that is output to the external device or selects a second audio signal output from the audio signal processing unit as the audio signal that is output to the external device.”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶142.

G. Independent Claim 7

- a) Limitation 7[pre]: “An audio and video synchronizing apparatus comprising:”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[pre]. *Id.* at ¶143.

- b) Limitation 7[a], “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[a]. *Id.* at ¶144.

- c) Limitation 7[b], “an audio signal processing unit outputting an audio signal that is synchronized with the video signal; and”

Boudreau et al. teaches this limitation for the reasons discussed in Claim 1, Limitation 1[b]. *Id.* at ¶145.

- d) Limitation 7[c], “an audio output selecting unit selecting an audio signal that is output to an external device that is not part of the video processing equipment,”

Boudreau et al. teaches this limitation for the reasons discussed in Claim 1, Limitation 1[c]. *Id.* at ¶146.

- e) Limitation 7[d], “wherein the audio output selecting unit selects an audio signal that bypasses the audio signal that is input to the audio signal processing unit or selects an audio signal output from the audio signal processing unit that is synchronized with the video signal as the audio signal that is output to the external device.”

Boudreau et al. teaches this limitation for the reasons discussed in Claim 1, Limitation 1[e]. *Id.* at ¶147.

H. Independent Claim 8

- a) Limitation 8[pre]: “An audio and video synchronizing apparatus comprising:”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[pre]. *Id.* at ¶148.

- b)** Limitation 8[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[a]. *Id.* at ¶149.

- c)** Limitation 8[b]: “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;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[b]. *Id.* at ¶150.

- d)** Limitation 8[c], “an outputting unit outputting at least an audio signal to an external device that is not part of the video processing equipment; and”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[c]. *Id.* at ¶151.

- e)** Limitation 8[d]: “an output selecting unit controlling the outputting unit according to a kind of the external device, wherein the output selecting unit controls the outputting unit 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 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 output to the external device.”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶152.

I. Independent Claim 9

- a) Limitation 9[pre], “An audio and video synchronizing apparatus comprising:”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[pre]. *Id.* at ¶153.

- b) Limitation 9[a]: “a video signal processing unit processing a video signal that is provided to a display device of video processing equipment;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[a]. *Id.* at ¶154.

- c) Limitation 9[b]: “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;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[b]. *Id.* at ¶155.

- d) Limitation 9[c], “an outputting unit outputting at least an audio signal to an external device that is not part of the video processing equipment;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[c]. *Id.* at ¶156.

- e) Limitation 9[d]: “a detecting unit detecting a kind of the external device;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶157.

- f) Limitation 9[e]: “an output selecting unit controlling the outputting unit according to the detected kind of the external device, wherein the output selecting unit controls the outputting unit 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 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 output to the external device.”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶158.

J. Independent Claim 10

- a) Limitation 10[pre]: “A method of controlling audio and video output comprising:”

Independent claim 10 is a method version of independent apparatus claim 1. Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[c]. *Id.* at ¶159.

- b) Limitation 10[a]: “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;”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶160.

- c) Limitation 10[b]: “selecting an audio signal according to a result of the determination and outputting the selected audio signal to the external device,”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶161.

- d) Limitation 10[c]: “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 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 signal processing unit.”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶162.

K. Claim 11: “The method according to claim 10, determining the kind of the external device comprises determining whether the external device connected to the output port is an audio device.”

Boudreau et al. discloses this claim for the reasons discussed for Claims 3 and 5. *Id.* at ¶163.

L. Claim 12: “The method according to claim 10, wherein the second audio signal is an audio signal that is provided to a speaker of the video processing equipment and synchronized with the video signal.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶164.

M. Claim 13: “The method according to claim 10, wherein selecting the audio signal and outputting the selected audio signal to the external device is performed automatically according to a result of the determination.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 1, Limitation 1[e]. *Id.* at ¶165.

N. Claim 14: “The method according to claim 10, wherein selecting the audio signal and outputting the selected audio signal to the external device is performed according to a user's output mode setting.”

Boudreau et al. discloses this claim for the reasons discussed for Claim 1, Limitation 1[e]. and discloses “according to a user’s output mode setting” as follows (Ex. 1005 at ¶166):

“a receiver 746 receives externally generated information, such as user inputs or commands from an input device, such as a remote control device 780”, *Id.* at [0052], and “DHCT 16 is notified of the external device 710 via a user interface displayed on the television 741, and by the user entering information via his or her remote control device 780, as described previously.” Ex. 1003. at [0073].

When the user sets the type of device in the user interface, a POSTA would understand that the selection of the external device includes the characteristics to know whether to output processed audio or the bypassed audio to the external device. Ex. 1005 at ¶166.

O. Claim 15: “The method according to claim 10, wherein the audio signal that is synchronized with the video signal is delayed according to a video signal processing path.”

Boudreau et al. discloses this claim. Ex. 1005 at ¶167. It teaches how the audio signal is delayed or not in all cases (external audio device or the TV speakers) to avoid “uncoincident lip-sync” when viewing an image through a

digital TV while listening to the sound through the TV speakers and/or an external audio device. *Id.* This is explained as follows: “and this audio is heard emanating from the television set 741 (or from remote speakers for the television set 741) and from the doll 210 (or from only the doll 210). *Id.* The doll 210 preferably receives this audio content in real-time with the show presentation, but in other embodiments, the audio content can be downloaded to the doll 210 ahead of time and presented in synchronization with the corresponding video for the show when “awakened” by trigger signals sent by the DHCT 16 or according to time stamps interpreted by the DHCT 16 and downloaded to the external device circuitry 200 (or interpreted at the doll 210).” Ex. 1003 at [0024]; Ex. 1005 at ¶167. Further Boudreau et al. teaches: “Related content designated for delivery to the external device 710 can be buffered in the XPORT buffer 735 and then downloaded to a local cache of the transceiver 771 for subsequent delivery that occurs in synchronization with the signals decoded and presented to the television set 741”, Ex. 1003 at [0056]; Ex. 1005 at ¶167.

P. Independent Claim 16

- a) Limitation 16[pre]: “A method of controlling audio and video output comprising:”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[c]. Ex. 1005 at ¶168.

b) Limitation 16[a]: “selecting an output mode of video processing equipment;”

The DCHT 16 makes the determinations of the type or kind of the external device and determines an output mode that either performs or bypasses audio processing operations in the DHCT 16. Ex. 1005 at ¶169. Such “determinations as to when an external device includes decoding functionality can be made based on the received information (i.e., received from the external device 710) that is loaded into the transceiver registers. The registers can include a device identification that the transceiver driver 711 or operating system 753 can use to determine the characteristics from an internal look up table (not shown), or one or more flag bits received into the registers are recognized by the transceiver driver 711 as indicative of decoding functionality or not.” Ex. 1003. at [0058], [0065]; Ex. 1005 at ¶169.

In this manner, one of two output modes is selected. Ex. 1005 at ¶170. In the first mode, audio signals can “bypass one or more elements of the signal processing system 714 [and] are forwarded directly to the output system 731 (or transceiver 771).” Ex. 1003 at [0061]; Ex. 1005 at ¶170. In the second mode, the audio output of the external device is processed by the DCHT 16, i.e., audio processing by the DCHT 16 is not bypassed, such that the audio output of the external device is synchronized with the video on the display screen and the audio

from the televisions speakers such that when the video shows the host saying “Let's work out ... this audio is heard emanating from the television set 741 (or from remote speakers for the television set 741) and from the doll 210 (or from only the doll 210).” Ex. 1003 at [0024]; Ex. 1005 at ¶170. This routing, i.e., output mode selection, is based upon the type or kind of the external device. i.e., whether or not it has the capability to decode (process) audio signals. Ex. 1005 at ¶¶169-170.

Limitation 16[a] is rendered obvious by Boudreau et al. Ex. 1005 at ¶171.

- c) Limitation 16[b]: “selecting an audio signal according to the selected output mode for output to an external audio device that is not part of the video processing equipment;”

As discussed with regard to limitation 16[a], the output mode, i.e., a first mode of outputting audio signals that bypass processing in the DCHT 16 or a second mode of outputting audio signals processed by the DCHT 16, is selected according to the characteristics of the external device as provided to the DCHT 16. Ex. 1005 at ¶¶ 109, 110, 169, and 170. Consequently, Boudreau et al. renders obvious the subject matter of limitation 16[b]. Boudreau et al. renders obvious the subject matter of limitation 16[b]. Ex. 1005 at ¶172.

- d) Limitation 16[c], “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.”

Boudreau et al. teaches this limitation for the reasons discussed for Claim 1, Limitation 1[e]. Ex. 1005 at ¶173.

Q. Claim 17: “The method according to claim 16, further wherein the second audio signal is an audio signal that is provided to a speaker of the video processing equipment and synchronized with the video signal.”

Boudreau et al. discloses this claim. Ex. 1005 at ¶174. For example, it teaches that when “[t]he show host barks out, “Let's work out”, ... this audio is heard emanating from the television set 741.” Ex. 1003 at [0024]; Ex. 1005 at ¶174.

R. Claim 18: “The method according to claim 16, wherein the audio signal that is synchronized with the video signal is delayed according to a video signal processing path.”

Boudreau et al. discloses the subject matter of this claim for the reasons discussed in Claim 15. Ex. 1005 at ¶175.

VIII. THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO DENY INSTITUTION

A. 35 U.S.C. § 314(a)

The Board should grant institution notwithstanding the parallel litigation between Patent Owner and Petitioners. In determining whether to exercise its discretion to deny institution of IPR in view of a parallel proceeding, the Board considers the following factors:

1. whether a stay of the parallel proceeding has been granted or may be granted if an IPR proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the Petitioners and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020)

(precedential) (“*Fintiv*”).

In evaluating these factors, the Board “takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

1. *Factor 1: The parallel proceeding is not stayed, and it is unknown whether a stay would be granted (Fintiv factor 1)*

Fintiv factor 1 is neutral. This factor considers whether the court presiding over the parallel proceeding has granted a stay or likely would grant a stay if the Board institutes IPR. *Fintiv*, Paper 11 at 6. Where a stay has not been granted, and it is unknown whether the presiding court would grant a stay if the Board institutes IPR, this factor is neutral. *See Cisco Sys., Inc. v. Estech Sys., Inc.*, IPR2021-00333,

Paper 12 at 10 (PTAB July 7, 2021) (finding *Fintiv* factor 1 neutral after “declin[ing] to speculate on the likelihood of a stay.”).

In this case, neither party requested a stay in the parallel proceeding, and it is unknown whether the Court would grant a stay if the IPR is instituted.

Accordingly, this factor is neutral.

2. *Factor 2: The trial will commence after the due date of a Final Written Decision (Fintiv factor 2)*

This factor weighs in favor of institution. The answer to the complaint was due on August 15. The Court in the parallel proceeding has issued a schedule. Currently, the Court has jury selection set for February 5, 2024. Ex. 1008 at p. 1.

Further, the Interim *Fintiv* Guidance² states: “Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB's consideration.” USPTO *Fintiv* Guidance., 8-9. The Interim *Fintiv* Guidance states that such statistics are available at U.S. District Courts—Combined Civil and Criminal

² Available at

https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf. (“USPTO *Fintiv* Guidance”).

Federal Court Management Statistics (March 31, 2022) (“U.S. District Court Statistics”).³ *Id.* at 9 n.12. The most recent statistic on median time-to-trial for civil actions in the Eastern District of Texas is 24.2 months. Ex. Ex. 1009 at p. 35.

Here, the complaint was filed on April 21, 2022. Ex. 1010. Applying the above statistic, the expected trial date would be approximately May 2024, well after the Board’s FWD deadline in this case which should be about February 2024. In such circumstances, the Board weighs *Fintiv* factor 2 as against exercising discretion to deny institution. *See, e.g., Hanwha Solutions Corp. v. REC Solar Pte. Ltd.*, IPR2021-00989, Paper 12 at 14 (PTAB Dec. 13, 2021).

3. *Factor 3: The parties’ investments in the parallel proceeding weigh in favor of institution (Fintiv factor 3)*

Fintiv factor 3 favors institution. This factor considers “the investment in the parallel proceeding by the court and the parties.” *Fintiv*, Paper 11 at 6. As stated, the date of the FWD is estimated to be in February. 35 U.S.C. § 314(b); 37 CFR § 42.107(b).

A scheduling conference was set for September 22, 2022. Ex. 1008. The date for a claim construction hearing and jury selection are August 15, 2023 and

³ Available at <https://www.uscourts.gov/statistics/table/nadefederal-court-management-statistics/2022/03/31-1>.

February 5, 2024 respectively. Ex.1008. The deadline to substantially complete document production in the parallel proceeding and file opening claim construction briefs is set for July 5, 2021, completion of fact and expert discovery is September 5, 2023 and October 17, 2023, respectively. The Decision on Institution (approximately February 2023) will be well before each of those deadlines. *Id.* Moreover, the District Court will not have considered any dispositive issues in the case, or any invalidity issues based on the prior art. Accordingly, this factor favors institution.

4. *Factor 4: IPR will address issues not raised in the parallel proceeding (Fintiv factor 4)*

Fintiv factor 4 will likely favor institution. On September 8, 2022, Plaintiff served infringement contentions against the Defendants in the parallel litigation. Ex. 1011. To date, Plaintiff has only accused claims 1, 2, 6-10, 13, 14, and 16 of infringement. *Id.* at p. 3. This Petition asserts invalidity of all 18 claims. Further, Petitioners submit a stipulation (Ex. 1007) that if IPR is instituted they will not pursue in the parallel proceeding invalidity positions that are brought or could have brought in this Petition. The Board recognizes with regard to factor 4 such stipulation weighs against exercising discretion. *Acuity Brands Lighting, Inc. v. Ultravision Technologies, LLC*, IPR2020-01638, Paper 8 at 12-13 (PTAB May 6, 2021). Accordingly, factor 4 also favors institution.

5. *Factor 5: PO and Petitioners are parties in the parallel proceeding (Fintiv factor 5)*

In addition, when the Board’s deadline for FWD precedes the district court trial date and the parties are the same in both proceedings, *Fintiv* factor 5 typically weighs against exercising discretion to deny institution. *See, e.g., Hanwha Solutions Corp.*, IPR2021-00989, Paper 12 at 17; *Carrier Fire & Security Americas Corp. v. Sentrilock, LLC*, IPR2021-00665, Paper 12 at 13-14 (PTAB Sept. 16, 2021).

6. *Factor 6: Other circumstances weigh in favor of institution (Fintiv factor 6)*

This factor considers “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11 at 6. The merits of the Petition and considerations of efficiency and fairness not addressed in *Fintiv* factors 1-5 favor institution.

The merits of this Petition are strong. The Petition exposes the claims are merely obvious combinations of elements that were well-known in the prior art. The Board has found *Fintiv* factor 6 “strongly weighs against denying institution” in view of similarly strong petitions. *HP Inc. v. Slingshot Printing LLC*, IPR2020-01084, Paper 13 at 11-12 (PTAB Jan. 13, 2021).

Considerations of efficiency and fairness also favor institution. Unlike in *Fintiv* (involving a one-patent district court case), PO asserts six patents in the parallel proceeding. Rather than leave to the District Court the issues of invalidity

and non-infringement for all six patents, it is more efficient for the Board to address the invalidity grounds in this Petition. Doing so would help alleviate the burdens on the District Court in addressing six patents and several accused products.

Moreover, the Board's technically trained judges are well suited to assess the patentability grounds presented in this Petition. This fact weighs heavily against discretionary denial. *Fintiv* factor 6 favors institution.

In this case, *Fintiv* factor 1 is neutral and factors 2-6 favor institution.

The merits of this Petition are strong. The Petition exposes the claims as mere obvious combinations of elements that were well-known in the prior art. The Board has found *Fintiv* factor 6 “strongly weighs against denying institution” in view of similarly strong petitions. *HP Inc. v. Slingshot Printing LLC*, IPR2020-01084, Paper 13 (PTAB Jan. 13, 2021).

B. 35 U.S.C. § 325(d)

Under 35 U.S.C. § 325(d), “[i]n determining whether to institute . . . the Director may take into account whether . . . the same or substantially the same prior art or arguments previously were presented to the Office.” Certain factors have been identified as informing whether the Board should exercise its discretion under this statute, particularly the following:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioners rely on the prior art or PO distinguishes the prior art;
- (e) whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential in relevant part).

None of the references cited in the Above Grounds is cited on the face of the '803 patent or referenced in the file history of the '803 patent with the consequence that factors c, d, e, and f are not applicable. This Petition shows that had the Examiner considered the combinations set forth in this Petition, the obviousness of claims 1-18 would have been manifest. (factors (a) and (b)).

Thus, in this case, these factors counsel against the Board exercising its discretion under 35 U.S.C. § 325(d).

IX. CONCLUSION

Petitioners respectfully requests institution of IPR.

Dated: November 29, 2022

PV Law LLP
5335 Wisconsin Avenue, N.W.
Suite 440
Washington, DC. 20015-2052
(202)-371-6861

Respectfully submitted,

/Jeremy Deane Peterson/
Lead Counsel
Jeremy D. Peterson Reg. No. 52,115

Back-up Counsel
Bradford A. Cangro, Reg. No. 58,478

Attorneys for Petitioners

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioners hereby certifies, in reliance on the word count feature provided by the word-processing system used to prepare this Petition, that the number of words in this Petition is 12,232. Pursuant to 37 C.F.R. § 42.24(a), words in the table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, certificate of word count, appendix of exhibits, and claim listing were excluded.

Dated: November 29, 2022

/s/ Jeremy D. Peterson
Jeremy D. Peterson
Reg. No. 52,115
PV Law LLP
5335 Wisconsin Avenue, N.W., Suite 440
Washington, DC 20015-2052
202.871.0140

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Petition and all exhibits and other documents filed together with the Petition were served on November 29, 2022 via Federal Express on the attorney of record for Patent Owner at the following address:

Jonathan Y. Kang
Lee, Hong, Degerman, Kang & Waimey
660 S. Figueroa Street
Suite 2300
Los Angeles, CA 90017

A copy of the foregoing Petition and all exhibits and other documents filed together with the Petition were also served on November 29, 2022 via electronic mail to counsel for LG Electronics Inc. in the Eastern District of Texas litigation at the email address below:

Melissa R. Smith
Gilliam & Smith, LLP
melissa@gilliamsmithlaw.com

Peter H. Kang
Theodore W. Chandler
Syed K. Fareed
Mark Speegle
Baker Botts L.L.P.
peter.kang@bakerbotts.com
ted.chandler@bakerbotts.com
syed.fareed@bakerbotts.com
mark.speegle@bakerbotts.com

IPR2023-00240, Petition for *Inter Partes* Review
U.S. Patent No. 7,982,803

Dated: November 29, 2022

/s/ Jeremy D. Peterson

Jeremy D. Peterson

Reg. No. 52,115

PV Law LLP

5335 Wisconsin Avenue, N.W., Suite 440

Washington, DC 20015-2052

202.871.0140