

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., and
TCL TECHNOLOGY GROUP CORPORATION (f/k/a TCL CORP.),
Petitioner,

v.

LG ELECTRONICS INC.,
Patent Owner.

IPR2023-00461
Patent 7,839,452 B2

Before ROBERT J. WEINSCHENK, JOHN A. HUDALLA, and
GARTH D. BAER, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background and Summary

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., and TCL Technology Group Corporation (f/k/a TCL Corp.) (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–3, 5–17, 19–21, and 23 (“the challenged claims”) of U.S. Patent No. 7,839,452 B2 (Ex. 1001, “the ’452 patent”). LG Electronics Inc. (“Patent Owner”) did not file a Preliminary Response to the Petition.

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Further, a decision to institute may not institute on fewer than all claims challenged in the petition. 37 C.F.R. § 42.108(a). Based on the arguments and evidence of record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one of the challenged claims of the ’452 patent is unpatentable. Accordingly, we institute an *inter partes* review as to the challenged claims of the ’452 patent on all the grounds of unpatentability in the Petition.

B. Real Parties in Interest

The parties identify themselves as the only real parties in interest.
Pet. 2–3; Paper 4, 2.

C. Related Matters

The parties indicate that the '452 patent is the subject of the following district court cases: 1) *LG Electronics Inc. v. TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.)*, No. 2:22-cv-00122 (E.D. Tex.); and 2) *LG Electronics Inc. v. Hisense Electronics Manufacturing Company of America Corporation*, No. 2:19-cv-09474 (C.D. Cal.). Pet. 3; Paper 4, 2. The parties also indicate that the '452 patent is the subject of IPR2020-01208. Pet. 3; Paper 4, 2.

D. The '452 Patent

The '452 patent relates to “an image display device in a digital TV that is capable of converting into various kinds of resolution by using single bit map data in the digital TV.” Ex. 1001, 1:15–18. The '452 patent states that a conventional digital TV receives “text data and image data.” *Id.* at 2:23–28. The conventional digital TV can “display various images having resolution of 720x480, 854x480, 1280x720 and 1920x1080.” *Id.* at 2:54–58. According to the '452 patent, although the conventional digital TV “can convert the *image* data into display format according to the variation of resolution and display it, . . . it does not have any function of converting the *text* data into the display format according to the variation of resolution.” *Id.* at 2:62–66 (emphases added). As a result, “a plurality of bit map data corresponding to the various resolution [are] stored and set in the memory,” which “causes the memory space occupied by the bit map data to be excessively increased.” *Id.* at 6:30–34.

To address this alleged deficiency in the conventional digital TV, the '452 patent describes a "format converter" that converts the bit map data so that it "corresponds to the display resolution." *Id.* at 6:23–26. The '452 patent provides "[a]n example of the format conversion of the format converter" in Table <1> reproduced below.

Display Resolution	First Bit Map Data (720 × 480, H × 1:V × 1)	Second Bit Map Data (960 × 540)
1920 × 1080	1920 × 1080 (H × 2.67:V × 2.25)	1920 × 1080 (H × 2:V × 2)
1280 × 720	1280 × 720 (H × 1.78:V × 1.5)	1280 × 720 (H × 2:V × 2)
854 × 480	854 × 480 (H × 1.19:V × 1)	854 × 480 (H × 0.89:V × 0.89)
720 × 480	720 × 480 (H × 1:V × 1)	720 × 480 (H × 0.75:V × 0.89)

Id. at 7:49–67. "As apparent from Table <1>, the resolution corresponding to the four resolution, respectively can be obtained by using the single first bit map data." *Id.* at 8:9–11. Thus, the format converter "can display various resolution with a few number of bit map data, and the memory space occupied by the bit map data can be considerably reduced." *Id.* at 6:35–39.

E. Illustrative Claim

Of the challenged claims, claims 1, 12, and 20 are independent.
Claim 1 is reproduced below.

1. A digital television having a display, comprising:
a receiving part configured to receive at least one of digital image data and analog image data;
a data processing part configured to execute bit map conversion and format-conversion for text data to be displayed on the display;

a memory configured to store the bit map data obtained according to the bit map conversion in the data processing part and image data inputted from an arbitrary receiving part;

an image outputting part configured to read image data from the memory; and

a display processing part configured to mix image data read from the image outputting part and the bit map data converted in format by the data processing part.

Ex. 1001, 9:49–63.

F. Evidence

Petitioner submits the following evidence:

Evidence	Exhibit No.
Mitani, EP 0700211 A2, published Mar. 6, 1996 (“Mitani”)	1003
Oku, JP 9-275563, published Oct. 21, 1997 (“Oku”)	1004
Abe, US 5,734,436, issued Mar. 31, 1998 (“Abe”)	1005
Declaration of Joseph P. Havlicek, Ph.D. (“Havlicek Declaration”)	1007

G. Asserted Grounds

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 5–17, 19–21, 23	103	Mitani, Oku
1, 8–11	103	Abe, Applicant Admitted Prior Art (“AAPA”)
2, 3, 5–7, 12–17, 19–21, 23	103	Abe, AAPA, Oku

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art would have had “a bachelor’s degree in computer graphics, display signal processing, or similar field of study, and several years (e.g., 5–6) of experience working

with digital display technology.” Pet. 13 (citing Ex. 1007 ¶ 17). Petitioner’s description of the level of ordinary skill in the art is supported by the testimony of Petitioner’s declarant, Dr. Joseph Havlicek. Ex. 1007 ¶ 17.

We adopt Petitioner’s description for purposes of this Decision.

B. Claim Construction

In an *inter partes* review proceeding, a patent claim is construed using the same standard used in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of the claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b).

Petitioner does not propose an express construction for any claim terms.

Pet. 6. We determine that no claim terms require express construction for purposes of this Decision.

C. Obviousness of Claims 1–3, 5–17, 19–21, and 23 over Mitani and Oku

Petitioner argues that claims 1–3, 5–17, 19–21, and 23 would have been obvious over Mitani and Oku. Pet. 24–47. For the reasons discussed below, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1–3, 5–17, 19–21, and 23 would have been obvious over Mitani and Oku.

1. Claim 1

Claim 1 recites “[a] digital television having a display.” Ex. 1001, 9:49. Petitioner presents evidence that Oku teaches a television receiver that receives digital signals and generates an output for display. Pet. 24 (citing

Ex. 1004 ¶¶ 3, 5, 10, 24). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches the preamble of claim 1.¹

Claim 1 recites “a receiving part configured to receive at least one of digital image data and analog image data.” Ex. 1001, 9:50–51. Petitioner presents evidence that Oku teaches a decoding circuit that receives encoded video. Pet. 24 (citing Ex. 1004 ¶¶ 3–6). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches this limitation of claim 1.

Claim 1 recites “a data processing part configured to execute bit map conversion and format-conversion for text data to be displayed on the display.” Ex. 1001, 9:52–54. Petitioner presents evidence that Mitani teaches a central processing unit (“CPU”) that generates bitmaps for text character codes and converts the bitmaps to a “ $\frac{1}{2}$ -format image display.” Pet. 25–28 (citing Ex. 1003, 21:58–22:1, 26:22–27, 26:34–27:10, Fig. 27). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches this limitation of claim 1.

Claim 1 recites “a memory configured to store the bit map data obtained according to the bit map conversion in the data processing part and image data inputted from an arbitrary receiving part.” Ex. 1001, 9:55–58. Petitioner presents evidence that Mitani teaches a memory that stores bitmap data, and Oku teaches a memory that stores a received digital video stream. Pet. 28–29 (citing Ex. 1003, 20:35–37, 21:10–11, 26:45–46, Fig. 29; Ex. 1004 ¶¶ 7, 14, 17, 21, 23, Figs. 1, 2). Petitioner also presents evidence

¹ Because Petitioner presents evidence that the prior art teaches the recitations in the preamble of claim 1, at this stage of the proceeding, we need not decide whether the preamble is limiting.

that it would have been obvious to combine Mitani and Oku in order to provide a single memory that stores the bitmap data and the received digital video stream. *Id.* (citing Ex. 1007 ¶¶ 135–139). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches this limitation of claim 1.

Claim 1 recites “an image outputting part configured to read image data from the memory.” Ex. 1001, 9:59–60. Petitioner presents evidence that Oku teaches a display data readout control circuit that reads out image data for display. Pet. 29 (citing Ex. 1004 ¶ 18, Fig. 1). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches this limitation of claim 1.

Claim 1 recites “a display processing part configured to mix image data read from the image outputting part and the bit map data converted in format by the data processing part.” Ex. 1001, 9:61–63. Petitioner presents evidence that Oku teaches a display circuit that overlays bitmap data on image data. Pet. 29–30 (citing Ex. 1004 ¶¶ 18–22, Fig. 1). On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches this limitation of claim 1.

2. Claims 2, 3, 5–17, 19–21, and 23

Independent claims 12 and 20 recite limitations similar to those discussed above for claim 1. Dependent claims 2, 3, 5–11, 13–17, 19, 21, and 23 depend from claims 1, 12, or 20. Petitioner presents evidence that the Mitani and Oku combination teaches the limitations of claims 2, 3, 5–17, 19–21, and 23. Pet. 33–47. On this record, Petitioner shows sufficiently that the Mitani and Oku combination teaches the limitations of claims 2, 3, 5–17, 19–21, and 23.

3. Reason to Combine

Petitioner argues that a person of ordinary skill in the art would have had reason to combine the cited teachings of Mitani and Oku. Pet. 30–33 (citing Ex. 1007 ¶¶ 99–118). Specifically, Petitioner asserts that it would have been obvious to “combine Mitani with Oku to enable the television in Mitani to display higher quality digital images instead of analog video signals.” *Id.* at 31 (citing Ex. 1007 ¶¶ 99–118). Petitioner presents evidence that “[a]t the time of the ’452 patent, the shift to digital video was well underway,” and, thus, “[m]odifying Mitani to support digital signal processing in view of Oku would have been incentivized by market forces.” *Id.* (citing Ex. 1007 ¶¶ 99–118). Petitioner also contends that “[t]he combination of Mitani and Oku is a simple substitution of one known component--analog image processing in Mitani--with another, digital image processing in Oku, to yield predictable results.” *Id.* Petitioner presents evidence that a person of ordinary skill in the art would have had a reasonable expectation of success in combining the cited teachings of Mitani and Oku. *Id.* at 32–33 (citing Ex. 1007 ¶¶ 105, 110, 116–118). On this record, Petitioner shows sufficiently that it would have been obvious to combine the cited teachings of Mitani and Oku.

4. Summary

For the foregoing reasons, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1–3, 5–17, 19–21, and 23 would have been obvious over Mitani and Oku.

D. Obviousness of Claims 1 and 8–11 over Abe and AAPA

Petitioner argues that claims 1 and 8–11 would have been obvious over Abe and AAPA. Pet. 47–56. Petitioner presents evidence indicating

that the Abe and AAPA combination teaches the limitations of claims 1 and 8–11, and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* In particular, for claim 1, Petitioner identifies AAPA as the digital television described in column 2, line 12 to column 3, line 38 of the '452 patent.² *Id.* at 48–50. On this record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1 and 8–11 would have been obvious over Abe and AAPA.

E. Obviousness of Claims 2, 3, 5–7, 12–17, 19–21, and 23 over Abe, AAPA, and Oku

Petitioner argues that claims 2, 3, 5–7, 12–17, 19–21, and 23 would have been obvious over Abe, AAPA, and Oku. Pet. 56–72. Petitioner presents evidence indicating that the Abe, AAPA, and Oku combination teaches the limitations of claims 2, 3, 5–7, 12–17, 19–21, and 23, and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* On this record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 2, 3, 5–7, 12–17, 19–21, and 23 would have been obvious over Abe, AAPA, and Oku.

III. CONCLUSION

Petitioner demonstrates a reasonable likelihood of prevailing in showing the unpatentability of at least one of the challenged claims of the '452 patent. At this stage of the proceeding, we have not made a final

² On this record, Petitioner's reliance on AAPA appears to comply with the guidance in USPTO Memorandum, Updated Guidance on the Treatment of Statements of the Applicant in the Challenged Patent in Inter Partes Reviews under § 311, 2–7 (June 9, 2022), *available at* <https://www.uspto.gov/sites/default/files/documents/2022060912updatedAAPAmemo.pdf>.

determination with respect to the patentability of any of the challenged claims.

IV. ORDER

It is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–3, 5–17, 19–21, and 23 of the '452 patent is instituted with respect to all grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '452 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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PETITIONER:

Jeremy D. Peterson
Bradford A. Cangro
PV LAW LLP
jeremy.peterson@pvuslaw.com
bradford.cangro@pvuslaw.com

PATENT OWNER:

Eliot D. Williams
Peter H. Kang
Theodore W. Chandler
Ferenc Pazmandi
Mark A. Speegle
Sean Lee
Brianna L. Potter
Lute Yang
BAKER BOTTS L.L.P.
eliot.williams@bakerbotts.com
pkang@sidley.com
ted.chandler@bakerbotts.com
ferenc.pazmandi@bakerbotts.com
mark.speegle@bakerbotts.com
sean.lee@bakerbotts.com
brianna.potter@bakerbotts.com
luteyang2013@gmail.com