

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TCL INDUSTRIES HOLDINGS CO., LTD. and HISENSE CO., LTD.,
Petitioner,

v.

PARKERVISION, INC.,
Patent Owner.

IPR2021-00990
Patent 7,110,444 B1

Before MICHAEL R. ZECHER, BART A. GERSTENBLITH, and
IFTIKHAR AHMED, *Administrative Patent Judges*.

GERSTENBLITH, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

TCL Industries Holdings Co., Ltd. and Hisense Co., Ltd. filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review (“IPR”) of claims 2–4 (“the Challenged Claims”) of U.S. Patent No. 7,110,444 B1 (Ex. 1001, “the ’444 patent”). ParkerVision, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”).

An *inter partes* review may be instituted only if “the information presented in the petition . . . and any [preliminary] response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). For the reasons given below, Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the Challenged Claims of the ’444 patent. Accordingly, we institute an *inter partes* review of claims 2–4 of the ’444 patent on all grounds raised in the Petition.

B. *Related Proceedings*

The parties identify the following as related matters: *ParkerVision, Inc. v. Intel Corporation*, 6:20-cv-00108 (W.D. Tex.) (“the Intel Litigation”); *ParkerVision, Inc. v. TCL Industries Holdings Co., Ltd. et al.*, No. 6:20-cv-00945 (W.D. Tex.) (“the TCL Litigation”); *ParkerVision, Inc. v. Hisense Co., Ltd. et al.*, No. 6:20-cv-00870 (W.D. Tex.) (“the Hisense Litigation”)¹; *ParkerVision, Inc. v. ZyXEL Communications Corp.*, No. 6:20-

¹ Collectively, we refer to the TCL and Hisense Litigations as the “Related Litigations.”

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cv-01010 (W.D. Tex.)²; *ParkerVision, Inc. v. LG Electronics Inc.*, No. 6:21-cv-00520 (W.D. Tex.); and *Intel Corporation v. ParkerVision, Inc.*, IPR2020-01265 (“the Intel IPR”). Pet. 4–5; Paper 5 (Petitioner’s Updated Mandatory Notice), 1; Paper 7 (Patent Owner’s Mandatory Notices), 1. Petitioner also identifies *ParkerVision, Inc. v. Buffalo Inc.*, No. 6:20-cv-01009 (W.D. Tex.), as a related matter involving the ’444 patent. Pet. 5. Additionally, Petitioner challenges several claims of U.S. Patent No. 7,292,835 B2, owned by Patent Owner, in IPR2021-00985. Pet. 5; Paper 7, 1.³

C. *Real Parties in Interest*

Petitioner identifies TCL Industries Holdings Co., Ltd.; Hisense Co., Ltd.; TCL Electronics Holdings Ltd.; Shenzhen TCL New Technology Co., Ltd.; TCL King Electrical Appliances (Huizhou) Co., Ltd.; TCL Moka Int’l Ltd.; TCL Moka Manufacturing S.A. DE C.V.; TCL Technology Group Corp.; TTE Technology, Inc.; and Hisense Visual Technology Co., Ltd. (f/k/a Qingdao Hisense Electronics Co., Ltd.) as real parties in interest. Pet. 4. Patent Owner identifies ParkerVision, Inc. as the sole real party in interest. Paper 7, 1.

² After the parties’ briefing, the district court granted a joint motion to dismiss with prejudice and the case is now closed. *See* Ex. 3001 (Docket Entry 25, Order dated Sept. 27, 2001).

³ Patent Owner identifies the instant proceeding—IPR2021-00990—as a related matter, but we understand Patent Owner to refer to IPR2021-00985. *See* Paper 7, 1.

D. The Asserted Grounds of Unpatentability and Declaration Evidence

Petitioner challenges the patentability of claims 2–4 of the '444 patent on the following grounds:

Claim(s) Challenged	35 U.S.C. §⁴	Reference(s)/Basis
2, 3	103(a)	Tayloe, ⁵ TI Datasheet ⁶
2–4	103(a)	Lam, ⁷ Enz, ⁸ Tayloe

Pet. 7.

Additionally, Petitioner supports its challenge with a Declaration by Matthew B. Shoemake, Ph.D. (Ex. 1002) and a Declaration by Maureen M. Honeycutt (Ex. 1009).

E. The '444 Patent

The '444 patent is directed to “a wireless local area network (WLAN) that includes one or more WLAN devices (also called stations, terminals, access points, client devices, or infrastructure devices) for effecting wireless communications over the WLAN.” Ex. 1001, 2:10–14. The '444 patent explains that “[t]he WLAN device includes at least an antenna, a receiver,

⁴ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the '444 patent has an effective filing date before March 16, 2013, we apply the pre-AIA version of the statutory basis for unpatentability.

⁵ U.S. Patent No. 6,230,000 B1, issued May 8, 2001 (Ex. 1004, “Tayloe”).

⁶ SN74CBT3253 Dual 1-of-4 FET Multiplexer/Demultiplexer (rev. ed. May 1998) (Ex. 1005, “TI Datasheet”).

⁷ U.S. Patent No. 5,937,013, issued Aug. 10, 1999 (Ex. 1006, “Lam”).

⁸ Circuit Techniques for Reducing the Effects of Op-Amp Imperfections: Autozeroing, Correlated Double Sampling, and Chopper Stabilization, *Proceedings of the IEEE*, Vol. 84, No. 11, Nov. 1996 (Ex. 1007, “Enz”).

and a transmitter The WLAN receiver includes at least one universal frequency translation module that frequency down-converts a received electromagnetic (EM) signal.” *Id.* at 2:14–22.

Figure 70A is reproduced below:

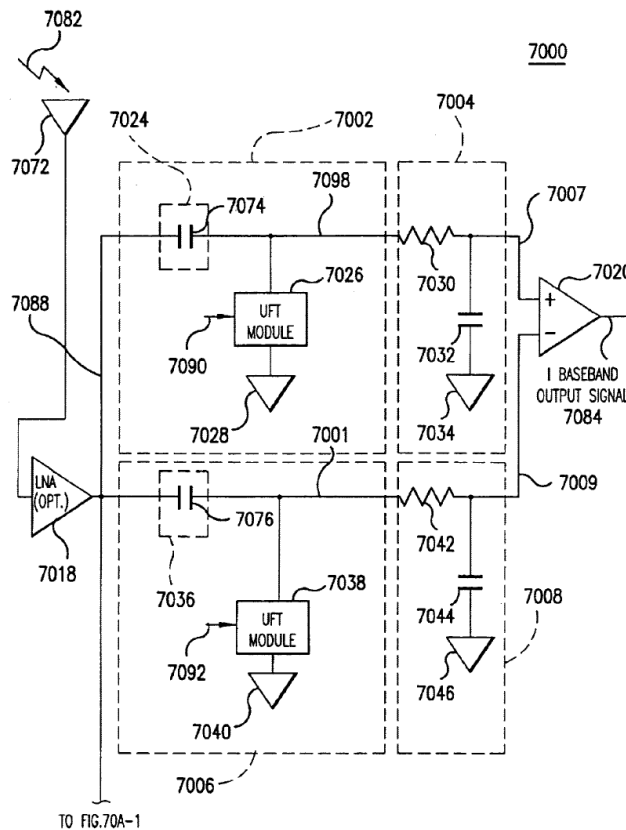


FIG. 70A

Figure 70A of the '444 patent “illustrates an IQ [in-phase quadrature] receiver having shunt UFT [universal frequency translation] modules.” Ex. 1001, 5:34–35.

The '444 patent explains that “I/Q modulation receiver 7000 receives, down converts, and demodulates a[n] I/Q modulated RF [radio frequency] input signal 7082 to an I baseband output signal 7084, and a Q baseband output signal 7086.” *Id.* at 35:51–54; *see id.* at 35:60–62 (Antenna 7072 receives and outputs I/Q modulated RF input signal 7082.). The '444 patent

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