

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DR. MICHAEL FARMWALD
and
RPX CORPORATION,
Petitioner,

v.

PARKERVISION, INC.,
Patent Owner.

Case IPR2014-00948
Patent 6,370,371 B1

Before MICHAEL R. ZECHER, BART A. GERSTENBLITH, and
JON B. TORNQUIST, *Administrative Patent Judges*.

TORNQUIST, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

Intel v. ParkerVision

I. INTRODUCTION

On June 12, 2014, Dr. Michael Farmwald and RPX Corporation (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 2, 22, 23, and 25 of U.S. Patent No. 6,370,371 B1 (“the ’371 patent”). On September 24, 2014, ParkerVision, Inc. (“Patent Owner”) timely filed a Preliminary Response (Paper 7, “Prelim. Resp.”) to the Petition. We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Upon consideration of the Petition and the Preliminary Response, we determine that there is a reasonable likelihood that Petitioner would prevail with respect to claims 2, 22, 23, and 25 of the ’371 patent. Pursuant to 35 U.S.C. § 314, we authorize an *inter partes* review to be instituted as to these claims on the grounds set forth below.

A. Related Proceedings

The parties represent that the ’371 patent is asserted in *ParkerVision, Inc. v. Qualcomm, Inc.*, No. 3:11-cv-00719 (M.D. Fla.). Pet. 1; Paper 5, 1.

B. The ’371 Patent

The challenged claims of the ’371 patent are directed to frequency down-conversion using a universal frequency down-conversion (UFD) module. Ex. 1003, 4:65–67, 5:15–17, 35:38–52. Figure 1C is depicted below:

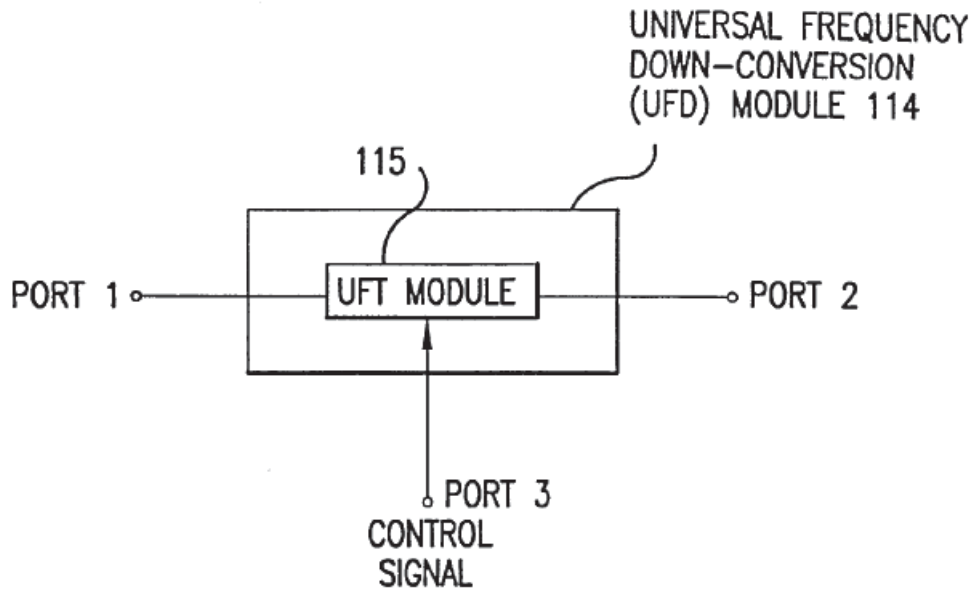


FIG. 1C

Figure 1C depicts one embodiment of a UFD module. *Id.* at 1:65–67. In this embodiment, the UFD module includes three ports, a control signal, and a “universal frequency translation (UFT) module.” *Id.* at 4:65–5:2, Fig. 1C.

Figure 1B below depicts a UFT module.

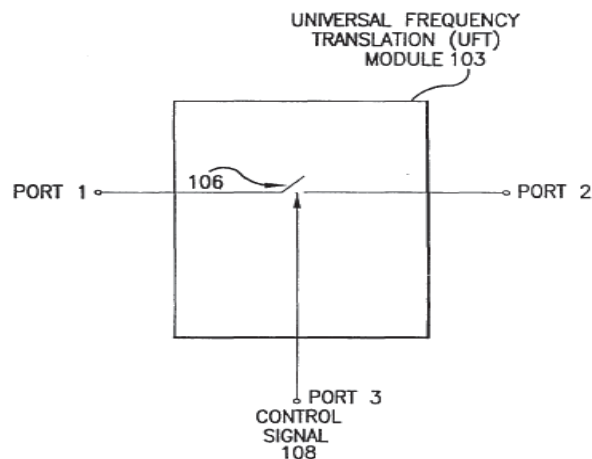


FIG. 1B

Figure 1B is a diagram of a UFT module according to one embodiment of the invention. *Id.* at 1:62–64. In this embodiment, the UFT module includes

three ports and “switch 106 controlled by control signal 108.” *Id.* at 4:49–51. “Generally, the UFT module . . . (perhaps in combination with other components) operates to generate an output signal from an input signal, where the frequency of the output signal differs from the frequency of the input signal.” *Id.* at 4:40–43.

According to the ’371 patent, the UFT module may be used in a broad variety of devices, including thermostats, garage door openers, televisions, stereos, CD players, tuners, computers, and video games. *Id.* at 30:3–17.

C. Illustrative Claims

Claim 2 is the only independent claim involved in this proceeding. Claims 22, 23, and 25 depend, directly or indirectly, from claim 2. Independent claim 2 and dependent claim 22 are illustrative of the challenged claims and are reproduced below:

2. An apparatus, comprising:
 - at least one universal frequency down-conversion module, including a switch, an integrator coupled to said switch, and a pulse generator coupled to said switch; and
 - wherein said pulse generator outputs pulses to said switch at an aliasing rate that is determined according to:
(a frequency of a carrier signal +/- a frequency of a lower frequency signal) divided by N;
 - wherein said pulses have apertures and cause said switch to close and sub-sample the carrier signal over said apertures, and wherein energy is transferred from the carrier signal and integrated using said integrator during said apertures of said pulses, and wherein the lower frequency signal is generated from the transferred energy.

Ex. 1003, 35:37–52.

22. The apparatus of claim 2, wherein each of said at least one universal frequency down-conversion module comprises:
an energy transfer signal generator;
a switch module controlled by said energy transfer signal generator; and
a storage module coupled to said switch module.

Id. at 36:55–61.

D. The Prior Art

Petitioner relies on the following prior art references, as well as the Declaration of Dr. Asad A. Abidi, dated June 7, 2014 (Ex. 1004):

Polly Estabrook, *The direct conversion receiver: Analysis and design of the front-end components*, 1–396 (1989) (Ph.D. diss., Stanford Univ.) (Ex. 1022, “Estabrook”);

Peter A. Weisskopf, *Subharmonic Sampling of Microwave Signal Processing Requirements*, MICROWAVE JOURNAL, 239–40, 242–44, 246–47 (May 1992) (Ex. 1023, “Weisskopf”); and

G. Avitabile, et al., *S-band digital downconverter for radar applications based on GaAs MMIC fast sample-and-hold*, 143 (6) IEE PROC.- CIRCUITS, DEVICES, AND SYST., 337–42 (1996) (Ex. 1024, “Avitabile”).

E. Alleged Grounds of Unpatentability

Reference	Basis	Claims challenged
Weisskopf	§102(b)	2, 22, 23, and 25
Estabrook	§102(b)	2, 22, 23, and 25
Avitabile	§102(b)	2, 22, and 25

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