

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

APPLE INC., HTC CORPORATION,  
HTC AMERICA, INC. and ZTE (USA) INC.,  
Petitioner,

v.

INVT SPE LLC,  
Patent Owner.

---

IPR2018-01476  
Patent 7,764,711 B2

---

Before THU A. DANG, BARBARA A. BENOIT, and J. JOHN LEE,  
*Administrative Patent Judges.*

LEE, *Administrative Patent Judge.*

JUDGMENT  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

## INTRODUCTION

Apple Inc., HTC Corporation, HTC America, Inc., and ZTE (USA) Inc.<sup>1</sup> (collectively, “Petitioner”) filed a Petition (Paper 4, “Pet.”) requesting an *inter partes* review of claims 1–6 (“the challenged claims”) of U.S. Patent No. 7,764,711 B2 (Ex. 1001, “the ’711 Patent”). An *inter partes* review of all challenged claims was instituted on April 12, 2019. Paper 9 (“Inst. Dec.”). After institution, INVT SPE LLC (“Patent Owner”) filed a Patent Owner Response (Paper 11, “PO Resp.”), Petitioner filed a Reply (Paper 21, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 24, “PO Sur-reply”). An oral hearing was held on January 14, 2020. Paper 27 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). As explained below, Petitioner has shown by a preponderance of the evidence that all challenged claims of the ’711 Patent are unpatentable.

### A. *Related Cases*

The parties identify as related to the present case the following district court cases: *INVT SPE LLC v. Apple Inc.*, Case No. 2:17-cv-03738 (D.N.J.); *INVT SPE LLC v. HTC Corporation*, Case No. 2:17-cv-03740 (D.N.J.); *INVT SPE LLC v. ZTE Corporation*, Case No. 2:17-cv-06522 (D.N.J.); *Inventergy, Inc. v. Apple Inc.*, Case No. 1:17-cv-00196 (D. Del.); and *Inventergy, Inc. v. HTC Corporation*, Case No. 1:17-cv-00200 (D. Del.). Pet. 67–68; Paper 5, 1. Patent Owner further identifies ten cases before the

---

<sup>1</sup> Petitioners identify ZTE Corporation as an additional real party-in-interest. Pet. 67.

Board involving petitions for *inter partes* review that it asserts may affect, or be affected by, the present case. Paper 5, 1–2.

*B. The '711 Patent*

The '711 Patent relates to “a transmission apparatus and transmission method which transmits signals from a plurality of transmission antennas like an MIMO (Multi-Input/Multi-Output) communication.” Ex. 1001, 1:10–14. The Specification describes two techniques for MIMO communications that each present challenges.

First, the Specification describes separating a data signal into “substreams” that are sent from “a plurality of transmission antennas at the same timing and same frequency . . . thereby transmit[ing] an amount of data proportional to the number of transmission antennas and realiz[ing] a high-speed, high-volume communication.” *Id.* at 1:42–47. This technique is known as spatial multiplexing. *See* Pet. 6 (citing Ex. 1003 ¶ 35); PO Resp. 2–3. This technique, however, suffers from the effects of interference, such as signal noise, which causes the error rate to deteriorate and results in poor channel quality. Ex. 1001, 1:48–59.

Second, to prevent such deterioration, the Specification describes a method whereby data is transmitted on one antenna and “the same data” (i.e., replica data) is sent on a plurality of antennas. *Id.* at 1:60–64. This technique is known as transmit diversity. *See* Pet. 5–6 (citing Ex. 1003 ¶ 33); PO Resp. 3. This technique, however, “reduces the transmission rate of the communication system,” which deteriorates transmission efficiency. Ex. 1001, 1:64–67.

The claimed invention is directed to solving both of these challenges, i.e., “to improve reception performance of specific data on a receiving side

while maintaining the transmission efficiency of a communication system.”  
*Id.* at 2:3–6.

*C. Challenged Claims*

Petitioner challenges all of the claims of the '711 Patent. Claims 1 and 6 are the only independent claims. Claim 1 is illustrative and is reproduced below:

1. A transmitting apparatus employing a MIMO (multi-input/multi-output) scheme of transmitting a plurality of data items for a same receiving apparatus using a plurality of antennas in parallel, the transmitting apparatus comprising:

a mapping section that maps the plurality of data items to at least one of the plurality of antennas; and

a transmitting section that transmits the plurality of data items using the at least one of the plurality of antennas to the receiving apparatus,

wherein the mapping section generates a replica data item by replicating a specific data item of the plurality of data items, and maps the plurality of data items to the at least one of the plurality of antennas such that the specific data item and the replica data item are transmitted from different antennas at a same time.

*D. Asserted Grounds of Unpatentability and Asserted Prior Art*

Trial was instituted on the following grounds of unpatentability asserted in the Petition:

<b>Claim(s) Challenged</b>	<b>35 U.S.C. §</b>	<b>References/Basis</b>
1–6	103(a)	Paulraj, <sup>2</sup> Huang, <sup>3</sup> Walton. <sup>4</sup>
1–6	103(a)	Wallace, <sup>5</sup> Walton

Inst. Dec. 28; *see* Pet. 8–9. In addition, Petitioner relies on a declaration by its proffered expert witness, Dr. Andrew C. Singer (Ex. 1003). Likewise, Patent Owner relies on a declaration by its proffered expert witness, Dr. Branimir Vojcic (Ex. 2002).

ANALYSIS

*A. Level of Ordinary Skill*

Petitioner asserts that a person of ordinary skill in the art would have had a bachelor’s degree in electrical engineering or an equivalent as well as three years of experience working with “multi-antenna wireless communication systems,” or one year of such experience with a master’s degree in electrical engineering focusing on communications systems.

Pet. 7–8 (citing Ex. 1003 ¶ 41). Patent Owner does not dispute Petitioner’s

---

<sup>2</sup> U.S. Patent No. 6,067,290, issued May 23, 2000 (Ex. 1005, “Paulraj”).

<sup>3</sup> H. Huang et al., *Achieving High Data Rates in CDMA Systems Using BLAST Techniques*, in CONFERENCE RECORD, IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE 2316 (1999) (Ex. 1006, “Huang”).

<sup>4</sup> U.S. Patent No. 7,095,709 B2, issued Aug. 22, 2006 (Ex. 1008, “Walton”).

<sup>5</sup> U.S. Patent Application Pub. No. 2002/0193146 A1, published Dec. 19, 2002 (Ex. 1009, “Wallace”).

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.