

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CONTINENTAL AUTOMOTIVE SYSTEMS, INC.,
Petitioner

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2022-00974
Patent 8,953,641 B2

Before AMBER L. HAGY, JASON W. MELVIN, and
AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

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

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I. INTRODUCTION

Continental Automotive Systems Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) challenging the patentability of claims 6–9, 11, 13, 14, 18, 22–25, 27, 28, 32, and 36–38 (“the challenged claims”) of U.S. Patent No. 8,953,641 B2 (Ex. 1001, “the ’641 patent”), which is assigned to Intellectual Ventures II LLC (“Patent Owner”).¹

The Petition presented the following grounds (*see* Pet. 5):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
6–9, 11, 13, 14, 18, 22–25, 27, 28, 32, 36–38	103(a)	Hwang, ² McFarland ³
6, 7, 8, 9	103(a)	Hwang, McFarland, Miyoshi ⁴

The primary references, Hwang and McFarland, were not before the Examiner during the original prosecution.

Patent Owner filed a Preliminary Response (Paper 6), and we instituted a trial on the asserted grounds of unpatentability (*see* Paper 11, 59). During the trial, Patent Owner filed a Response, Petitioner filed a Reply, and Patent Owner filed a Sur-reply. *See* Paper 18 (“PO. Resp.”); Paper 19 (“Reply”); Paper 27 (“Sur-reply”).

¹ Toyota Motor Corp. was on the Petition but settled with Patent Owner and was terminated from the proceeding. *See* Paper 24.

² Inseok Hwang et al., *A New Frame Structure for Scalable OFDMA Systems*, IEEE C802.16d-04/19 (2004).

³ U.S. Pub. App. 2002/0006167 A1.

⁴ U.S. Patent No. 7,372,909 B2.

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Petitioner relies on testimony from Dr. Robert Akl, D.Sc. *See* Ex. 1003 (“Akl Declaration”); Ex. 1021 (“Supplemental Akl Declaration”). Patent Owner relies on testimony from Dr. Gary Lomp. *See* Ex. 2001 (“Lomp Declaration”); Ex. 2015 (“Second Lomp Declaration”).

We conducted an oral hearing on September 6, 2023, and a copy of the transcript is included in the record. *See* Paper 39 (“Tr.”).

We now determine, for the reasons explained below, that Petitioner has shown by a preponderance of the evidence that claims 6–9, 11, 13, 14, 18, 22–25, 27, 28, 32, and 36–38 of the ’641 patent are unpatentable.

A. Related Matters

Petitioner identifies six civil actions as related matters. *See* Pet. 69–70. Petitioner also identifies the following *inter partes* reviews as related: IPR2018-01689 (concerning the ’641 patent); IPR2018-01770 (concerning the ’641 patent); IPR2015-01664 (concerning US 7,787,431 B2); and IPR2014-01995 (concerning US 7,787,431 B2). Patent Owner identifies three of the six civil actions identified by Petitioner, and two of the four *inter partes* reviews identified by Petitioner. *See* Paper 4, 2.

We instituted review in IPR2018-01689 to consider challenges to claims of the ’641 patent based on references called Li, Husted, and Chang. *See* IPR2018-01689, Paper 15, 62. We instituted review in IPR2018-01770 to consider challenges to claims of the ’641 patent based on the Hwang and McFarland references that are used in this petition. *See* IPR2018-01770, Paper 18, 64. Both cases terminated before reaching a final written decision. *See* IPR2018-01689, Paper 22; IPR2018-01770, Paper 24.

B. The '641 Patent

The '641 patent is titled “Methods and Apparatus for Multi-Carrier Communication with Variable Channel Bandwidth.” The patent explains that it is ideal for a broadband wireless communication device to roam from one part of the world to another, but that “wireless communication spectra are heavily regulated and controlled by individual countries or regional authorities.” Ex. 1001, 1:31–35. The patent further explains that, even within the same country or region, a wireless operator may own and operate on a broadband spectrum that is different from other operators. *Id.* at 1:37–40. The patent concludes that it would be desirable to have “[a] practical and feasible solution for multi-carrier communication with variable channel width.” *Id.* at 2:1–3.

The '641 patent describes how a “variable channel bandwidth is realized by adjusting the number of usable subcarriers, whose spacing is set constant.” Ex. 1001, 4:41–42. This is shown in a table of sample system parameters, which lists four different operating bandwidths, 10MHz, 8MHz, 6MHz, and 5MHz, each with its own corresponding number of subcarriers, 800, 640, 480, and 400:

TABLE 1

Sample System Parameters				
Sampling freq.	11.52 MHz			
FFT size	1024 points			
Subcarrier spacing	11.25 kHz			
Channel bandwidth	10 MHz	8 MHz	6 MHz	5 MHz
# of usable subcarriers	800	640	480	400

Table of Sample System Parameters

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