

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

NEO WIRELESS, LLC,
Patent Owner.

IPR2022-01539
Patent 10,965,512 B2

Before HYUN J. JUNG, CHARLES J. BOUDREAU, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

JUNG, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Volkswagen Group of America, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of an *inter partes* review of claims 1–30 of U.S. Patent No. 10,965,512 B2 (Ex. 1001, “the ’512 patent”). Neo Wireless LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Under 35 U.S.C. § 314, 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 for the reasons explained below, we determine that Petitioner has shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims.

Thus, we institute an *inter partes* review of claims 1–30 of the ’512 patent on all presented challenges. 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”); *see also SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

B. *Real Parties in Interest*

The parties only identify themselves as real parties in interest. Pet. 2; Paper 4, 1. Petitioner additionally identifies itself as a subsidiary of Volkswagen AG. Pet. 2.

C. *Related Matters*

Petitioner lists several civil actions in which Neo Wireless, LLC is the plaintiff and the ’512 patent is involved. Pet. 2–3. Patent Owner lists ten current proceedings involving the challenged patent and nine proceedings

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that, according to Patent Owner, have been terminated. Paper 4, 1–3. The current proceedings include:

In Re: Neo Wireless, LLC Patent Litigation, No. 2:22-md-03034 (E.D. Mich.);

Neo Wireless LLC v. American Honda Motor Co., Inc., No. 2:22-cv-11403 (E.D. Mich.);

Neo Wireless, LLC v. Ford Motor Co., No. 2:22-cv-11402 (E.D. Mich.);

Neo Wireless, LLC v. Tesla Inc., No. 2:22-cv-11408 (E.D. Mich.);

Neo Wireless, LLC v. General Motors Co., No. 2:22-cv-11407 (E.D. Mich.);

Neo Wireless LLC v. Toyota Motor North America, Inc., No. 2:22-cv-11406 (E.D. Mich.);

Neo Wireless, LLC v. Volkswagen Group of America, Inc., No. 2:22-cv-11404 (E.D. Mich.);

Neo Wireless, LLC v. Nissan North America Inc., No. 2:22-cv-11405 (E.D. Mich.);

Neo Wireless, LLC v. Mercedes-Benz, No. 2:22-cv-11769 (E.D. Mich.); and

Neo Wireless, LLC v. FCA, No. 2:22-cv-11770 (E.D. Mich.). *Id.* at 1–2.

Petitioner also identifies IPR2022-01537 and IPR2022-01538. Pet. 4. Patent Owner additionally identifies IPR2022-01567. Paper 4, 3. We further note that Mercedes-Benz USA, LLC and Ford Motor Company both have filed petitions substantially identical to the instant Petition, along with motions for joinder as petitioners in this proceeding. IPR2023-00079, Papers 1, 3; IPR2023-00764, Papers 1, 3.

D. The '512 Patent (Ex. 1001)

The '512 patent issued on March 30, 2021, from an application filed on September 4, 2020, which is a continuation of several previously filed applications, the earliest of which was filed on January 20, 2005. Ex. 1001, codes (22), (45), (63), 1:10–29. The '512 patent also claims priority to a provisional application filed on January 29, 2004. *Id.* at code (60), 1:29–31.

The '512 patent provides “methods to define the transmission formats of the cell-specific and common pilot subcarriers that enable a receiver to perform different system functions.” Ex. 1001, 3:37–40. According to the '512 patent, “signal reception can be improved by manipulating phase values of the pilot subcarriers and by using power control.” *Id.* at 3:43–45.

The '512 patent describes that wireless networks include base stations to cover designated areas or cells. Ex. 1001, 1:44–46. For “multi-carrier wireless communications,” such as “orthogonal frequency division multiple access (OFDMA),” “network information provided by a portion of total subcarriers such as pilot subcarriers” facilitates “important system functions such as frequency synchronization and channel estimation.” *Id.* at 1:36–40, 3:55–57. “In a multi-cell environment, for example, the base station transmitter of each cell transmits its own pilot subcarriers, in addition to data carriers, to be used by the receivers within the cell.” *Id.* at 1:54–57. The '512 patent states that “degradation due to multipath propagation” and interference between signals from different base stations adversely affect “pilot-dependent functions.” *Id.* at 1:57–61.

In the '512 patent, a pilot generation and insertion functional block “generates pilot subcarriers and inserts them into predetermined frequency locations.” Ex. 1001, 3:6–8. The “pilot subcarriers are divided into two

different groups according to their functionalities, and hence their distinct requirements.” *Id.* at 3:10–12.

“The first group is called ‘cell-specific pilot subcarriers,’ and will be used by the receiver 104 to extract information unique to each individual cell,” such as for “use[] in channel estimation where it is necessary for a particular receiver to be able to differentiate the pilot subcarriers that are intended for its use from those of other cells.” Ex. 1001, 3:17–23. “For these pilot subcarriers, counter-interference methods are necessary.” *Id.* at 3:23–24.

“The second group is termed ‘common pilot sub-carriers,’ and are designed to possess a set of characteristics common to all base stations of the system.” Ex. 1001, 3:25–27. “[E]very receiver 104 within the system is able to exploit these common pilot subcarriers to perform necessary functions without interference problem,” such as for a “frequency synchronization process, where it is not necessary to discriminate pilot subcarriers of different cells, but it is desirable for the receiver to combine coherently the energy of common pilot subcarriers with the same carrier index from different cells, so as to achieve relatively accurate frequency estimation.” *Id.* at 3:27–36.

Figure 9 of the ’512 patent is below reproduced.

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