

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MERCEDES-BENZ USA, LLC,  
Petitioner,

v.

NEO WIRELESS, LLC,  
Patent Owner.

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IPR2023-00079  
Patent 10,965,512 B2

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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

Granting Motion for Joinder

35 U.S.C. § 315(c); 37 C.F.R. § 42.122

## I. INTRODUCTION

### A. *Background and Summary*

Mercedes-Benz USA, LLC (“Petitioner” or “Mercedes”) 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”). Concurrently, Petitioner filed a Motion for Joinder seeking to be joined as a party to *Volkswagen Group of America, Inc. v. Neo Wireless, LLC*, IPR2022-01539 (“Volkswagen IPR”). Paper 3 (“Motion” or “Mot.”). Neo Wireless LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”) and a Response to Petitioner’s Motion for Joinder (Paper 7 (“Opp.”)). Petitioner subsequently filed a Reply in Support of its Motion for Joinder. Paper 9 (“Mot. Reply”).

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.” For the reasons that follow, we determine that institution of *inter partes* review is warranted on the same grounds instituted in the Volkswagen IPR and grant Petitioner’s Motion for Joinder.

### B. *Real Parties in Interest*

Petitioner identifies Mercedes-Benz USA, LLC; Mercedes-Benz Intellectual Property GmbH & Co. KG; and Mercedes-Benz AG as real parties in interest. Pet. 2. Patent Owner identifies only itself as a real party in interest. Paper 5, 1.

### C. *Related Matters*

Petitioner lists several civil actions in which Neo Wireless, LLC is the plaintiff and the ’512 patent is involved. Pet. 2–4. 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 5, 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 USA, LLC*, No. 2:22-cv-11769 (E.D. Mich.); and

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

Both parties also identify IPR2022-01539. Pet. 4; Paper 5, 2. We additionally note that Ford Motor Company has filed a petition substantially identical to the instant Petition, along with a motion for joinder as a petitioner in IPR2022-01539. 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, 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.” Ex. 1001, 1:36–38, 3:55–57. The “pilot subcarriers are divided into two different groups according to their functionalities.” *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.” *Id.* at 3:17–19. “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.” *Id.* at 3:25–27.

*E. Illustrative Claim*

The '512 patent includes claims 1–30, all of which Petitioner challenges. Of the challenged claims, claims 1, 8, 15, and 23 are independent. Reproduced below is claim 1.

1. An orthogonal frequency division multiple access (OFDMA)-compatible base station that uses subcarriers in a frequency domain and time slots in a time domain, the OFDMA-compatible base station comprising:
  - a plurality of antennas; and
  - a transmitter operably coupled to the plurality of antennas;the transmitter configured to:
  - insert first pilots of a first type onto a first plurality of subcarriers, wherein the first pilots are cell-specific pilots; and
  - insert data and second pilots of a second type onto a second plurality of subcarriers;wherein at least some subcarriers of the first plurality of subcarriers or the second plurality of subcarriers are beam-formed; and
  - the plurality of antennas configured to transmit the first plurality of subcarriers and the second plurality of subcarriers in at least one of the time slots;
  - wherein the second type is different than the first type and wherein the first pilots do not interfere with the second pilots.

Ex. 1001, 9:46–67.

*F. Asserted Prior Art and Proffered Testimonial Evidence*

Petitioner identifies the following references as prior art in the asserted grounds of unpatentability:

Name	Reference	Exhibit
Tong	US 7,120,395 B2, issued Oct. 10, 2006	1005
Li	US 2002/0163879 A1, published Nov. 7, 2002	1007
Smee	US 2004/0131007 A1, published July 8, 2004	1017
Ketchum	US 2004/0179627 A1, published Sept. 16, 2004	1006
Kim	WO 2004/049618 A1, published June 10, 2004	1004

Pet. 5–6. Petitioner states that “all references relied upon herein are prior art as of January 29, 2004,” “[t]he ‘512 patent’s earliest possible priority date.”

*Id.* at 5–6. According to Petitioner, Kim, Tong, Ketchum, and Smee are

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