

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE (USA) INC.,
SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

EVOLVED WIRELESS LLC,
Patent Owner.

Case IPR2016-01342
Patent 8,218,481 B2

Before WILLIAM V. SAINDON, PETER P. CHEN, and TERRENCE W.
McMILLIN, *Administrative Patent Judges*

McMILLIN, *Administrative Patent Judge*

DECISION

Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. INTRODUCTION

ZTE (USA) Inc., Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (collectively, “Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–4, 6, 8–11, and 13 of U.S. Patent No. 8,218,481 B2 (Ex. 1001, “the ’481 patent”). Paper 2 (“Pet.”). Evolved Wireless, LLC, the assignee of the ’481 patent, filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”).

Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any Preliminary Response shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Taking into account the information presented, we conclude the record establishes there is a reasonable likelihood that Petitioner will prevail with respect to at least one of the challenged claims of the ’481 patent. Accordingly, we institute trial as set forth below.

A. Related Matters

The ’481 patent has been asserted in several actions, captioned *Evolved Wireless, LLC v. Apple, Inc.*, C.A. 15-cv-542 (D. Del.); *Evolved Wireless, LLC v. HTC Corp.*, C.A. 15-cv-543 (D. Del.); *Evolved Wireless, LLC v. Lenovo Group Ltd.*, C.A. 15-cv-544 (D. Del.); *Evolved Wireless, LLC v. Samsung Electronics Co. Ltd.*, C.A. 15-cv-545 (D. Del.); *Evolved Wireless, LLC v. ZTE Corp.*, C.A. 15-cv-546 (D. Del.); and *Evolved Wireless, LLC v. Microsoft Corp.*, C.A. 15-cv-547 (D. Del.). Pet. 1; Prelim. Resp. 2–3.

The ’481 patent is the subject of: IPR2016-00758, in which trial has been instituted on claims 1–3, 6, 8–10, and 13; IPR2016-00981, in which

trial has been instituted on claims 1, 8, 15, and 16; and IPR2016-01349 in which trial has been instituted on claims 1–4, 6, 8–11, 13, 15, and 16. The '481 patent is also the subject of IPR2017-00068, and IPR2017-00106, in which decisions as to whether to institute trial have not yet been rendered.

B. The '481 Patent

The '481 patent is titled “Method of Transmitting Data in a Mobile Communication System.” Ex. 1001, [54]. It issued on July 10, 2012, from U.S. Patent Application No. 12/303,947, filed on June 8, 2007, which claims priority to KR 10-2006-0052167, filed June 9, 2006, and KR 10-2006-0057488, filed June 26, 2006. *Id.* at [21], [22], [30], [45]. According to the Specification, “[t]he present invention relates to a mobile communication system, and more particularly, to a method of expanding a code sequence, a structure of a random access channel and a method of transmitting data in a mobile communication system.” *Id.* at 1:16–20. The disclosed methods and systems are alleged to increase the amount of data that can be transmitted to make the data transmission more robust and less susceptible to noise or channel change. *Id.* at 2:45–49. And, the invention is alleged to be applicable to wireless Internet systems. *Id.* at 18:28–30.

The '481 patent contains sixteen claims, all of which are directed to the structure of a preamble sequence of a data transmission. *Id.* at 18:33–20:16. Independent claim 1 is directed to “[a] method of transmitting a preamble sequence,” and independent claim 8 is directed to “[a] transmitter for transmitting a preamble sequence.” *Id.* at 18:33–42, 18:60–19:3. The independent claims require “repeating a specific sequence, having a length (L), N times to generate a consecutive sequence having a length (N*L)” and “concatenating a single cyclic prefix (CP) to a front end of said consecutive

sequence.” *Id.* Figure 11, which illustrates the claimed preamble structure with a single prefix and a repeated sequence, is reproduced below.

FIG. 11

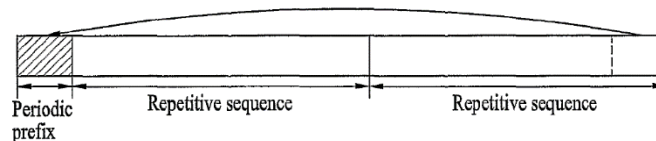


Figure 11 depicts a single prefix at the front end of consecutive, repeated sequences. *Id.* at 11:55–64.

C. The '481 Patent Claims

Of the challenged claims, claims 1 and 8 are independent. Claim 1 recites:

1. A method of transmitting a preamble sequence in a mobile communication system, the method comprising:

repeating a specific sequence, having a length (L), N times to generate a consecutive sequence having a length (N*L);

generating said preamble sequence by concatenating a single cyclic prefix (CP) to a front end of said consecutive sequence; and

transmitting, on a random access channel, said preamble sequence to a receiving side.

Ex. 1001, 18:33–42. Claim 8 recites:

8. A transmitter for transmitting a preamble sequence in a mobile communication system, the transmitter comprising:

a preamble generation unit configured to generate said preamble sequence by repeating a specific sequence, having a length (L), N times to generate a consecutive sequence having a

length ($N*L$) and concatenating a single cyclic prefix (CP) to a front end of said consecutive sequence;

a transmission unit configured to transmit, on a random access channel, said preamble sequence to a receiving side.

Ex. 1001, 18:60–19:3.

Dependent claims 2 and 9 recite generating “said specific sequence from a Constant Amplitude Zero Auto Correlation (CAZAC) sequence.” *Id.* at 18:43–45, 19:4–7. Dependent claims 3 and 10 recite applying “a cyclic shift sequence to said specific sequence generated from said CAZAC sequence.” *Id.* at 18:46–48, 19:8–11. Dependent claims 4 and 11 recite “a value of said applied cyclic shift is determined as an integer multiple of a predetermined circular shift unit.” *Id.* at 18:49–51, 19:13–15. Dependent claims 6 and 13 recite “multiplying said specific sequence by an exponential sequence.” *Id.* at 18:54–56, 20:1–4.

D. Asserted Grounds of Unpatentability

Petitioner challenges claims of the '481 patent on the following grounds of unpatentability.

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