

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

Cases IPR2014-01195
Patent 7,787,431

Before JAMESON LEE, JUSTIN BUSCH, and
J. JOHN LEE, *Administrative Patent Judges*.

BUSCH, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

INTRODUCTION

A. Background

Ericsson Inc. and Telefonaktiebolaget LM Ericsson (“Petitioner”) filed a Petition to institute an *inter partes* review (Paper 2, “Pet.”) of claims 1, 2, 8–12, and 18–22 (the “challenged claims”) of U.S. Patent No. 7,787,431 (Ex. 1001, “the ’431 patent”). Intellectual Ventures II LLC

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(“Patent Owner”) filed a Preliminary Response (“Prelim. Resp.”) on November 5, 2014. Paper 10.

We have jurisdiction under 35 U.S.C. § 314. The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that 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.” After considering the Petition and Preliminary Response, we determine that Petitioner has established a reasonable likelihood of prevailing on at least one ground on claims 1 and 2, but not claims 8–12 and 18–22. Accordingly, we institute an *inter partes* review of claims 1 and 2.

B. Related Proceedings

The parties indicate the ’431 patent is at issue in five district court proceedings involving numerous parties, none of which name Petitioner as a defendant. Pet. 1; Paper 5, 1.

C. The ’431 Patent

The ’431 patent relates to multi-carrier communication systems and methods with variable channel bandwidth. Ex. 1001, Abstract.

The challenged claims recite methods and base stations for generating and/or transmitting information bearing signals, wherein the information bearing signals include a primary preamble having certain properties. *Id.* at 9:33–10:9, 11:54–12:27, 13:4–47.

D. Illustrative Claims

Of the challenged claims in the ’431 patent, claims 1, 8 and 18 are independent. Claims 1 and 18 are directed to methods, and claim 8 is

directed to a base station having circuitry configured to execute the method steps of claim 18. Therefore, claims 1 and 18 are illustrative and recite:

1. In a variable bandwidth wireless communication system communicating under multiple different communication schemes that each have a different bandwidth, a process performed by a base station of generating an information bearing signal for wireless transmission, the process comprising:

utilizing by the base station a number of subcarriers to construct a variable bandwidth wireless channel;

utilizing by the base station groups of subcarriers, wherein each group includes a plurality of subcarriers;

maintaining a fixed spacing between adjacent subcarriers;

adding or subtracting, by the base station, groups of subcarriers to scale the variable bandwidth wireless channel and achieve an operating channel bandwidth; and

wherein a core-band including a plurality of subcarrier groups, substantially centered at an operating center frequency of the different communication schemes, is utilized by the base station as a broadcast channel carrying radio control and operation signaling, where the core-band is substantially not wider than a smallest possible operating channel bandwidth of the system; and

wherein the information bearing signal has a primary preamble sufficient for basic radio operation and wherein:

the primary preamble is a direct sequence in the time domain with a frequency content confined within the core-band, or is an orthogonal frequency-divisional multiplexing (OFDM) symbol corresponding to a particular frequency pattern within the core-band; and

wherein properties of the primary preamble comprise:

an autocorrelation having a large correlation peak with respect to sidelobes;

a cross-correlation with other primary preambles having a small cross-correlation coefficient with respect to power of other primary preambles; and

a small peak-to-average ratio; and
wherein a large number of primary preamble sequences exhibit the properties.

18. A variable bandwidth communication method comprising:

transmitting a broadcast channel by a cellular base station in an orthogonal frequency division multiple access (OFDMA) core-band, wherein the core-band is substantially centered at an operating center frequency and the core-band includes a first plurality of sub carrier groups, wherein each subcarrier group includes a plurality of subcarriers, wherein the core-band is utilized to communicate a primary preamble sufficient to enable radio operations, the primary preamble being a direct sequence in the time domain with a frequency content confined within the core-band or being an OFDM symbol corresponding to a particular frequency pattern within the core-band

wherein properties of the primary preamble comprise:

an autocorrelation having a large correlation peak with respect to sidelobes;
a cross-correlation with other primary preambles having a small cross-correlation coefficient with respect to power of other primary preambles; and
a small peak-to-average ratio; and
wherein a large number of primary preamble sequences exhibit the properties; and

transmitting control and data channels by the cellular base station using a variable band including a second plurality of subcarrier groups, wherein the variable band includes at least the core-band.

Ex. 1001, 9:33–10:2, 13:4–36.

E. The Evidence of Record

Petitioner relies upon the following prior art references as its basis for

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challenging claims 1, 2, 8–12, and 18–22 of the '431 patent.¹

Reference	Patents/Printed Publications	Exhibit
Li	U.S. Pat. No. 6,904,283 B2 (June 7, 2005)	1002 (“Li”)
Yamaura	U.S. Patent No. 7,782,750 B2 (August 24, 2010)	1003 (“Yamaura”)
Zhuang	U.S. Patent No. 7,426,175 B2 (September 16, 2008)	1004 (“Zhuang”)
UTRA	<i>Universal Mobile Telecommunications System (UMTS); UMTS Terrestrial Radio Access (UTRA); Concept evaluation (UMTS 30.06 version 3.0.0)</i> , European Telecommunications Standards Institute (1997)	1007 (multiple parts) (“UTRA”)
Mody	U.S. Patent Pub. 2002/0181509 A1 (Dec. 5, 2002)	1005 (“Mody”)
Nobilet	Nobilet et al., <i>Spreading Sequences for Uplink and Downlink MC-CDMA Systems: PAPR and MAI Minimization</i> , European Transactions on Communications, vol. 13, no. 5, pp. 465–473 (2002)	1006 (“Nobilet”)
Popovic	Popović, <i>Spreading Sequences for Multicarrier CDMA Systems</i> , IEEE Trans. Comm., vol. 47, no. 6, pp. 918–926 (1999)	1008 (“Popovic”)

¹ Petitioner also proffers the Declaration of Dr. Zygmunt Haas. See Ex. 1012 (“Haas Dec.”).

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