Trials@uspto.gov
Tel: 571-272-7822

Paper 37
Entered: Jan. 29, 2016

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 B2

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

BUSCH, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Ericsson Inc. and Telefonaktiebolaget LM Ericsson ("Petitioner") filed a Petition requesting an *inter partes* review (Paper 2, "Pet.") of claims 1, 2, 8–12, and 18–22 of U.S. Patent No. 7,787,431 B2 (Ex. 1001, "the '431 patent"). On February 4, 2015, we instituted an *inter partes* review of claims 1 and 2 (the "challenged claims"), but did not institute a review of

claims 8–12 and 18–22. Paper 11 ("Decision"). Intellectual Ventures II LLC ("Patent Owner") filed a Patent Owner Response ("PO Resp.") on April 23, 2015. Paper 22. Petitioner filed a Reply. Paper 25 ("Reply"). An oral hearing was held on September 10, 2015.[1]

We have jurisdiction under 35 U.S.C. § 6(c), and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine Petitioner has shown by a preponderance of the evidence that claims 1 and 2 are unpatentable.

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 performed by base stations for generating 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, claim 1 is independent, illustrative, and reproduced below:

> 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

[1] The record includes a transcript of the oral hearing. Paper 36 ("Tr.").

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 cannel carrying radio control and operation signalling, 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.

E. The Evidence Relied Upon By Petitioner

Petitioner relies upon the following prior art references as its basis for challenging claims 1 and 2 of the '431 patent.[2]

Reference	Patents/Printed Publications	Exhibit
Li	U.S. Patent No. 6,904,283 B2 (June 7, 2005)	1002
Yamaura	U.S. Patent No. 7,782,750 B2 (August 24, 2010)	1003
Zhuang	U.S. Patent No. 7,426,175 B2 (September 16, 2008)	1004
UTRA (Referred to in some filings as Beta)	*Universal Mobile Telecommunications System (UMTS); UMTS Terrestrial Radio Access (UTRA); Concept evaluation (UMTS 30.06 version 3.0.0)*, European Telecommunications Standards Institute (1997)	1007 (multiple parts)
Mody	U.S. Patent Pub. 2002/0181509 A1 (December 5, 2002)	1005
Nobilet	Stéphane Nobilet et al., *Spreading Sequences for Uplink and Downlink MC-CDMA Systems: PAPR and MAI Minimization*, European Transactions on Communications, Vol. 13, No. 5, pp. 465–474 (2002)	1006
Popovic	Branislav M. Popović, *Spreading Sequences for Multicarrier CDMA Systems*, IEEE Trans. Comm., Vol. 47, No. 6, pp. 918–926 (1999)	1008

[2] Petitioner also proffers the Declarations of Zygmunt J. Haas, Ph.D. *See* Exs. 1012, 1034.

1. Li (Ex. 1002)

Li "relates to the field of wireless communications; more particularly, the invention relates to multi-cell, multi-subscriber wireless systems using orthogonal frequency division multiplexing (OFDM)." Ex. 1002, 1:11–14. Li describes separating a wide OFDM bandwidth into multiple narrow-band subcarriers and grouping one or more of the subcarriers into clusters. *Id.* at 1:19–21, 5:18–27. One of Li's base stations may assign a subscriber (e.g., a mobile unit) a variable number of clusters of subcarriers, increasing or decreasing the communication bandwidth as necessary. *Id.* at 6:43–48.

2. Yamaura (Ex. 1003)

Yamaura describes a method, and apparatuses for implementing the method, of radio communication "for exchanging information between a base station and a terminal station." The described method communicates multi-carrier signals using OFDM modulation "including plural subcarriers within a bandwidth, communicating control signals in addition to the information between the base station and the terminal station, and wherein part of the control signals . . . is transmitted by one or more specific subcarriers in the bandwidth for the multi-carrier signals." Ex. 1003, Abstract.

3. Zhuang (Ex. 1004)

Zhuang describes optimizing the auto correlation properties of each pilot signal and the cross correlation properties between pilot signals through the use of certain chirp sequences. Ex. 1004, 2:7–29.

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.