

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

Patent 7,787,431

Title: METHODS AND APPARATUS FOR MULTI-CARRIER
COMMUNICATIONS WITH VARIABLE CHANNEL
BANDWIDTH

PETITION FOR INTER PARTES REVIEW

Pursuant to the provisions of 35 U.S.C. §§ 311-319, Petitioner Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively, “Ericsson”) hereby petitions the Patent Trial and Appeal Board to institute an *inter partes* review of claims 1, 2, 8-12, and 18-22 of United States Patent No. 7,787,431 (“the ’431 patent,” ERIC-1001) that issued on August 31, 2010, to Xiaodong Li, et al. According to USPTO records, the ’431 patent is currently assigned to Intellectual Ventures II LLC (“IV”).

TABLE OF CONTENTS

I. Mandatory Notices 1

 A. Real Party-in-Interest 1

 B. Related Matters 1

 C. Lead and Back-up Counsel and Service Information..... 1

II. Grounds for Standing 2

III. Relief Requested 2

IV. The Reasons for the Requested Relief..... 2

 A. Summary of the Related Technology and the '431 Patent 2

 B. The Prosecution History 7

 C. The Prior Art of the Present Petition 8

V. Reasons That Challenges Are Not Cumulative..... 15

VI. Identification of Challenges and Claim Construction..... 15

 A. Challenged Claims 15

 B. Claim Construction 16

 1. *Bandwidth*..... 16

 2. *Core-Band* 17

 3. *Primary Preamble*..... 17

 4. *Peak-to-Average Ratio* 18

 C. Statutory Grounds for Challenges..... 19

 1. Challenge #1: Claims 8-11 and 18-21 are unpatentable under 35 U.S.C. § 103(a) over Li, Yamaura, and Zhuang 20

2. Challenge #2: Claims 1, 2, 12, and 22 are unpatentable under 35 U.S.C. § 103(a) over Li, Yamaura, Zhuang, and Beta	39
3. Challenge #3: Claims 8-11 and 18-21 are unpatentable under 35 U.S.C. § 103(a) over Li, Yamaura, Mody, Nobilet, and Popovic	47
4. Challenge #4: Claims 1, 2, 12, and 22 are unpatentable under 35 U.S.C. § 103(a) over Li, Yamaura, Mody, Nobilet, Popovic, and Beta	56
VII. Conclusion	60

I. Mandatory Notices

A. Real Party-in-Interest

The real party-in-interest is Ericsson.

B. Related Matters

As of the filing date of this petition and to the best knowledge of Ericsson, the '431 Patent is involved in the following litigations:

- *IV I LLC et al. v. AT&T Mobility LLC et al.*, 1-13-cv-01668 (D. Del. 2013).
- *IV I LLC et al. v. Leap Wireless Int'l et al.*, 1-13-cv-01669 (D. Del. 2013).
- *IV I LLC et al. v. Nextel Operations, et al.*, 1-13-cv-01670 (D. Del. 2013).
- *IV I LLC et al. v. T-Mobile USA Inc. et al.*, 1-13-cv-01671 (D. Del. 2013).
- *IV I LLC et al. v. United States Cellular Corp.*, 1-13-cv-01672 (D. Del. 2013).

C. Lead and Back-up Counsel and Service Information

<u>Lead Counsel</u>	<u>Back-up Counsel</u>
J. Andrew Lowes HAYNES AND BOONE, LLP 2323 Victory Ave. Suite 700 Dallas, TX 75219 Phone: (972) 680-7557 Fax: (214) 200-0853 andrew.lowes.ipr@haynesboone.com USPTO Customer No. 27683 USPTO Reg. No. 40,706	David M. O'Dell HAYNES AND BOONE, LLP 2323 Victory Ave. Suite 700 Dallas, TX 75219 Phone: (972) 739-8635 Fax: (214) 200-0853 david.odell.ipr@haynesboone.com USPTO Customer No. 27683 USPTO Reg. No. 42,044

Please address all correspondence to lead and back-up counsel. Ericsson also consents to electronic service by email.

II. Grounds for Standing

Ericsson certifies that the '431 patent for which review is sought is available for *inter partes* review and that Ericsson is not barred or estopped from requesting *inter partes* review challenging the patent claims on the grounds identified in the petition.

III. Relief Requested

Ericsson asks that the Board review the accompanying prior art and analysis, institute a trial for *inter partes* review of claims 1, 2, 8-12, and 18-22 of the '431 patent, and cancel those claims as unpatentable.

IV. The Reasons for the Requested Relief

A. Summary of the Related Technology and the '431 Patent

The '431 patent relates generally to multi-carrier communication systems, such as systems that employ orthogonal frequency division multiplexing (OFDM). *See* ERIC-1001, 1:43-47 and 2:36-38; *See also*, ERIC-1012, ¶ 19. “A basic structure of a multi-carrier signal in the frequency domain is made up of subcarriers and, illustrated in FIG. 3, which shows three types of subcarriers” – data subcarriers, pilot subcarriers, and silent subcarriers. ERIC-1001, 3:23-32. Fig. 3 is reproduced below:

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.