

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

MOBILE TELECOMMUNICATIONS TECHNOLOGIES, LLC,  
Patent Owner.

---

Case IPR2015-01726  
Patent 5,659,891

---

Before MEREDITH C. PETRAVICK, SCOTT A. DANIELS, and  
MIRIAM L. QUINN, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

DECISION

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

## I. INTRODUCTION

### A. Background

Petitioner, Samsung Electronics Co., Ltd., filed a Petition to institute an *inter partes* review of claims 1–5 of U.S. Patent No. 5,659,891 (“the ’891 patent”). Paper 2 (“Pet.”). Patent Owner, Mobile Telecommunications Technologies, LLC, timely filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). Upon consideration of the evidence in the Petition and the Preliminary Response, we determine that Petitioner has established a reasonable likelihood of prevailing on the claims challenged in the Petition. Accordingly, we institute an *inter partes* review of claims 1–5 of the ’891 patent.

### B. Additional Proceedings

The ’891 patent is also challenged, currently, by Petitioner in IPR2015-01727. Petitioner states that the ’891 patent is asserted against Petitioner in the U. S. District Court for the Eastern District of Texas, *Mobile Telecommunications Technologies, LLC v. Samsung Electronics Co.*, Case No. 2:15-CV-183. Pet. 1. Petitioner also notes that the ’891 patent is asserted against other parties in at least (1) *Mobile Telecommunications Technologies, LLC v. Apple, Inc.*, Case No. 2:13-CV-258 (“the Apple lawsuit”); (2) *Mobile Telecommunications Technologies, LLC v. Leap Wireless International, Inc.*, Case No. 2:13-CV-885 (“the Leap lawsuit”); (3) *Mobile Telecommunications Technologies, LLC v. T-Mobile USA, Inc.*, Case No. 2:13-CV-886, (“the T-Mobile lawsuit”); and (4) *Mobile*

*Telecommunications Technologies, LLC v. AT&T Mobility LLC*, Case No. 2:14-CV-897, all in the Eastern District of Texas. *Id.* at 1–2.

Petitioner states further that the '891 patent was also challenged in previous *inter partes* review proceedings, namely *Apple Inc. v. Mobile Telecommunications Technologies, LLC*, Case IPR2014-01035 (PTAB filed June 27, 2014); and *T-Mobile USA, Inc. v. Mobile Telecommunications Technologies, LLC*, Case IPR2015-00018 (PTAB filed Oct. 3, 2014).<sup>1</sup> *Id.* at 2.

### *C. The '891 Patent*

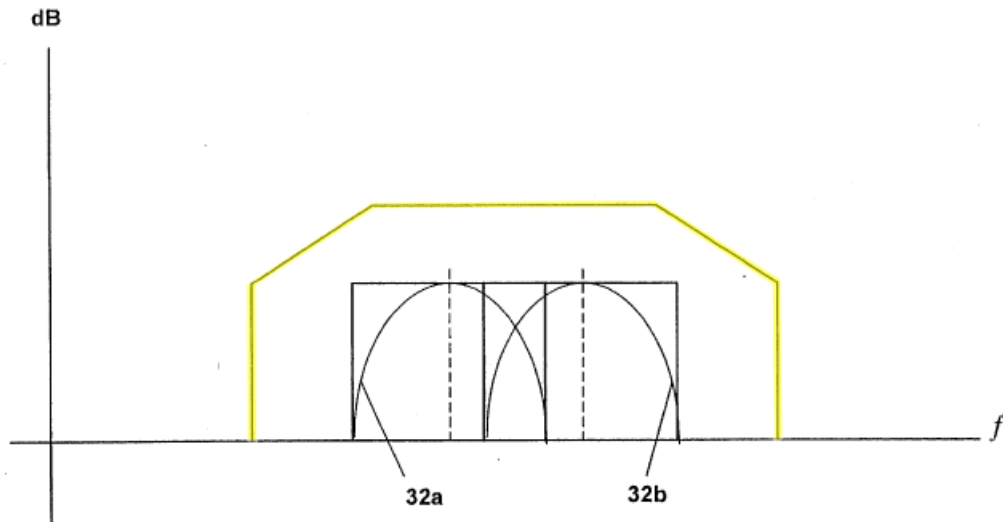
The '891 patent (Ex. 1001), titled “Multicarrier Techniques in Bandlimited Channels,” generally relates to a method for multicarrier modulation (“MCM”) using geographically co-located transmitters to achieve a higher frequency transmission capacity within FCC emission mask limits. The method provides for a plurality of overlapping subchannels within a single mask-defined bandlimited channel to provide higher data transmission capacity for a mobile paging system. Ex. 1001, 2:15–59. The technique involves transmitting a plurality of paging carriers, in corresponding overlapping subchannels, from the same location and within the mask-defined bandlimited channel, without bandlimiting each of the individual subchannels. *Id.* In this way, with the center frequencies of the plurality of modulated carriers within the single bandlimited channel, an

---

<sup>1</sup> IPR2014-01035 and IPR2015-00018 were both terminated pursuant to settlement agreements between the respective parties. *See T-Mobile USA, Inc. v. Mobile Telecomms. Techs., LLC*, Case IPR2015-00018 (PTAB filed Oct. 3, 2014) (Paper 14); *Apple Inc. v. Mobile Telecomms. Techs., LLC*, Case IPR2014-01035 (PTAB filed June 27, 2014) (Paper 21).

optimum transmission capacity is provided and the plurality of carriers may emanate from the same transmission source, i.e., an antenna. *Id.*

An annotated version of Figure 3B of the '891 patent, reproduced below, depicts two adjacent carriers asymmetrically located within a single, mask-defined, bandlimited channel.



As depicted by Figure 3B of the '891 patent, above, two carriers 32a and 32b are shown operating over two subchannels (no reference number) within a bandlimiting mask (annotated in yellow) defining the channel. The subchannels are asymmetrically aligned within the mask resulting in partial subchannel overlap. *Id.* at 4:24–30. The center frequencies of the carriers 32a and 32b are shown by the vertical dashed lines, and, concomitant with the subchannels, carriers 32a and 32b also overlap. According to the '891 patent, geographic co-location of the transmitters reduces interference problems between adjacent subcarriers, thus allowing the spacing between subchannels to be reduced. *Id.* at 4:12–20. The '891 patent explains that the practical implications of such an asymmetrical arrangement are a greater

range of operating parameters, essentially because more subchannels can be fit within the bandlimited mask without undue interference. *Id.* at 4:36–46.

*D. Illustrative Claim*

Claims 1, 3, and 5 are independent. Each of dependent claims 2 and 4 depend directly from claims 1 and 3 respectively. Claim 1 illustrates the claimed subject matter and is reproduced below:

1. A method of operating a plurality of paging carriers in a single mask-defined, bandlimited channel comprising the step of transmitting said carriers from the same location with said carriers having center frequencies within said channel such that the frequency difference between the center frequency of the outer most of said carriers and the band edge of the mask defining said channel is more than half the frequency difference between the center frequencies of each adjacent carrier.

*E. The Alleged Grounds of Unpatentability*

Petitioner contends that the challenged claims are unpatentable on the following specific grounds.<sup>2</sup>

References	Basis	Claims Challenged
Petrovic <sup>3</sup>	§ 102	1–5
Petrovic, Raith, <sup>4</sup> and Alakija <sup>5</sup>	§ 103	5

<sup>2</sup> Petitioner supports its challenge with a Declaration of Dr. Apostolos K. Kakaes, Ph.D. (Ex. 1003, “Kakaes Decl.”). *See infra*.

<sup>3</sup> Ex. 1013, Rade Petrovic, Walt Roehr & Dennis Cameron, *Permutation Modulation for Advanced Radio Paging*, IEEE PROC. SOUTHEASTCON, Apr. 1993.

<sup>4</sup> Ex. 1014, WO 89/08355 (Sept. 8, 1989).

<sup>5</sup> Ex. 1015, C. Alakija & S.P. Stapleton, *A Mobile Base Station Phased Array Antenna*, IEEE INT’L CONF. ON SELECTED TOPICS WIRELESS COMM., June 1992, at 118.

# 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.