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Paper 9
Entered: February 16, 2016

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 IPR2015-01727
Patent 5,659,891

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

DANIELS, *Administrative Patent Judge.*

DECISION
Decision Denying 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 3 ("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 not established a reasonable likelihood of prevailing on the claims challenged in the Petition. Accordingly, we do not institute an *inter partes* review of any of the challenged claims of the '891 patent.

B. Additional Proceedings

The '891 patent is also challenged, currently, by Petitioner in IPR2015-01726. 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 other *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).[1] *Id.* at 2.

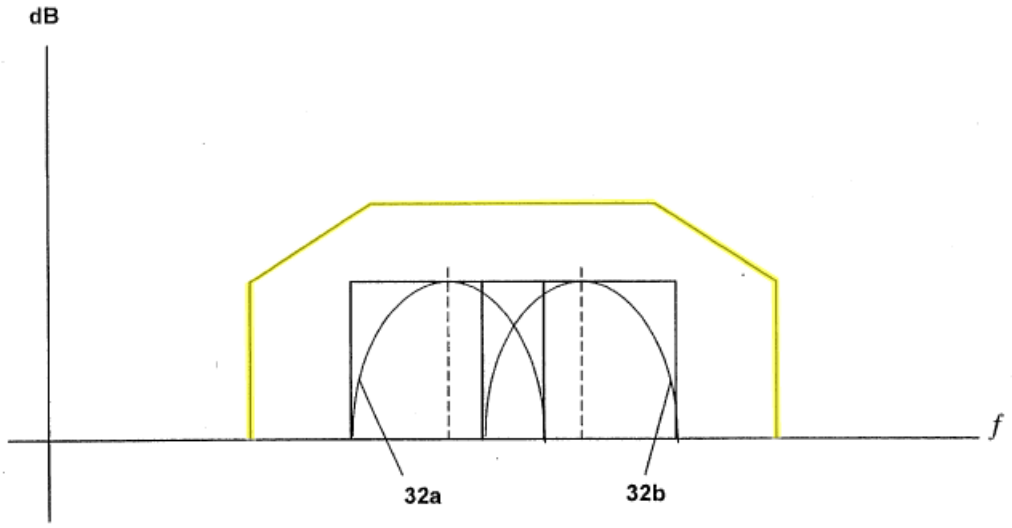
The '891 Patent

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 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 optimum

[1] 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).

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.

C. 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.

The Alleged Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable on the following specific grounds.[2]

References	Basis	Claims Challenged
Cimini[3]	§ 103	1–4
Cimini, Raith[4], and Alakija[5]	§ 103	5

[2] Petitioner supports its challenge with a Declaration of Dr. Apostolos K. Kakaes, Ph.D. (Ex. 1003, "Kakaes Decl."). *See infra*.
[3] Ex. 1013, Leonard J. Cimini Jr., *Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing*, IEEE TRANSACTIONS ON COMM. 665 (1985).
[4] Ex. 1014, WO 89/08355 (Sept. 8, 1989).
[5] 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.

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