

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ARRIS GROUP, INC.,
Petitioner,

ARUBA NETWORKS, INC.,
HEWLETT PACKARD ENTERPRISE COMPANY, and HP, INC.,
Petitioner,

v.

MOBILE TELECOMMUNICATIONS TECHNOLOGIES, LLC,
Patent Owner.

Case IPR2016-00766 (Patent 5,659,891)
Case IPR2016-00768 (Patent 5,659,891)¹

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

PETRAVICK, *Administrative Patent Judge*.

DECISION
Decision Instituting *Inter Partes* Review
37 C.F.R. § 42.108

¹ The issues are the same in each of the proceedings listed above. We, therefore, issue one Decision to be filed in each proceeding.

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IPR2016-00768 (Patent 5,659,891)

I. INTRODUCTION

A. Background

Petitioner, ARRIS Group, Inc., filed a Petition to institute an *inter partes* review of U.S. Patent No. 5,659,891 (“the ’891 patent”). Paper 1² (“Pet.”). Petitioners, Aruba Networks, Inc., Hewlett Packard Enterprise Company, and HP, Inc., filed a nearly identical Petition to institute an *inter partes* review of the ’891 patent. ARRIS Group, Inc., Aruba Networks, Inc., Hewlett Packard Enterprise Company, and HP, Inc. (collectively, “Petitioners”) challenge the patentability of claims 1–5 of the ’891 patent. Pet. 1. In response, Mobile Telecommunications Technologies, LLC (“Patent Owner”), timely filed a substantially identical Preliminary Response in both proceedings. Paper 13 (“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 analysis and evidence in the Petitions and the Preliminary Responses, we determine that Petitioners establish a reasonable likelihood of prevailing on the claims challenged in the Petitions. Accordingly, we institute an *inter partes* review of claims 1–5 of the ’891 patent.

B. Additional Proceedings

Both parties indicate that the ’891 patent is the subject of numerous district court proceedings. Pet. 1–2, Paper 8, 2–4.

In addition, both parties also indicate that the ’891 patent was the subject of other *inter partes* review proceedings. Pet. 2–3, Paper 8, 4. The following *inter partes* review proceedings were all terminated pursuant to

² Unless otherwise indicated, citations are to IPR2015-00766.

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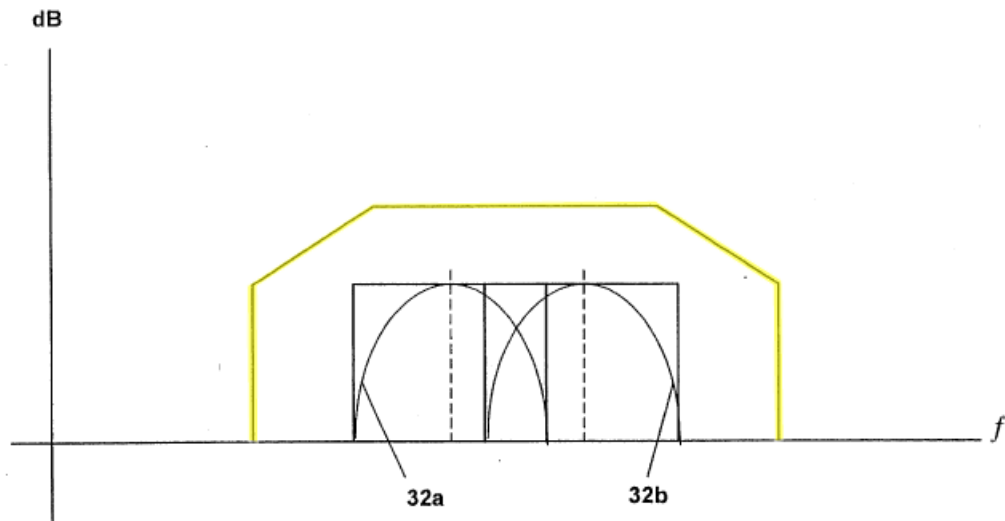
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settlement agreements between the respective parties: *Apple Inc. v. Mobile Telecommunications Technologies, LLC*, Case IPR2014-01035 (PTAB June 27, 2014); *T-Mobile USA Inc. v. Mobile Telecommunications Technologies, LLC*, Case IPR2015-00018 (PTAB filed Oct. 3, 2014), and *Samsung Electronics Co., Ltd. v. Mobile Telecommunications Technologies, LLC*, Case IPR2015-01726 (PTAB filed Aug. 13, 2015) (“the Samsung IPR”). Institution was denied in *Samsung Electronics Co., Ltd. v. Mobile Telecommunications Technologies, LLC*, Case IPR2015-01727 (PTAB filed Aug. 13, 2015).

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 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.

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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

Petitioners contend that the challenged claims are unpatentable on the following specific grounds.

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

Petitioners support its challenge with a Declaration of Dr. Apostolos K. Kakaes, Ph.D. (Ex. 1003, “Kakaes Decl.”).

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

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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