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Paper 10
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KYOCERA CORPORATION, and
KYOCERA COMMUNICATIONS INC.,
Petitioner,

v.

ADAPTIX, INC.,
Patent Owner.

Case IPR2015-00319
Patent 6,947,748 B2

Before GLENN J. PERRY, TREVOR M. JEFFERSON, and JUSTIN BUSCH, *Administrative Patent Judges*.

PERRY, *Administrative Patent Judge*.

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

INTRODUCTION

A. Background

Kyocera Corporation and Kyocera Communications Inc. (collectively, "Petitioner") filed a Petition for an *inter partes* review of claims 8, 9, 21, and 22 of U.S. Patent No. 6,947,748 B2 (Ex. 1003, "the '748 patent") under 35 U.S.C. §§ 311–319. Paper 1 ("Petition" or "Pet."). Adaptix, Inc. ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless "the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." For the reasons that follow, we institute an *inter partes* review as to claims 8, 9, 21 and 22 of the '748 patent.

B. Related Proceedings

Petitioner indicates that the '748 patent is involved in numerous lawsuits pending in Texas and California. Pet. 1–2. The '748 patent is also involved in Case IPR2014-01524 (Decision to Institute (Paper 16), April 8, 2015) brought by a different Petitioner.

THE '748 PATENT

A. The '748 Patent Invention

The '748 patent describes an arrangement for selecting and assigning subcarriers for use by multiple subscribers (e.g., mobile phones) in an orthogonal frequency division multiple access (OFDMA) system. Subscribers measure "channel and interference information" for subcarrier

channels using pilot symbols transmitted by a base station. Ex. 1003, Abstract. A subscriber selects "candidate subcarriers" and provides feedback (measurement) information on the candidate subcarriers to the base station. The base station then selects subcarriers for use by the subscriber that chose the candidate subcarriers. *Id.*

B. Illustrative Claims

Of the challenged claims, claims 8 and 21 are independent and are reproduced below.

> 8. A method for subcarrier selection for a system employing orthogonal frequency division multiple access (OFDMA) comprising:
>
> a subscriber measuring channel and interference information for a plurality of subcarriers based on pilot symbols received from a base station;
>
> the subscriber selecting a set of candidate subcarriers;
>
> the subscriber providing feedback information on the set of candidate subcarriers to the base station;
>
> the subscriber sending an indication of coding and modulation rates that the subscriber desires to employ for each cluster; and
>
> the subscriber receiving an indication of subcarriers of the set of subcarriers selected by the base station for use by the subscriber.
>
> 21. An apparatus comprising:
>
> a plurality of subscribers in a first cell to generate feedback information indicating clusters of subcarriers desired for use by the plurality of subscribers; and
>
> a first base station in the first cell, the first base station to allocate OFDMA subcarriers in clusters to the plurality of subscribers;
>
> each of a plurality of subscribers to measure channel and interference information for the plurality of subcarriers based on pilot symbols received from the first base station and at least

one of the plurality of subscribers to select a set of candidate subcarriers from the plurality of subcarriers, and

the one subscriber to provide feedback information on the set of candidate subcarriers to the base station and to receive an indication of subcarriers from the set of subcarriers selected by the first base station for use by the one subscriber,

wherein the one subscriber sends an indication of coding and modulation rates that the one subscriber desires to employ.

C. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability under 35 U.S.C. § 103(a) against claims 8, 9, 21, and 22 (Pet. 3):

Prior Art	Claims
Ritter[1], Van Nee[2], and Chuang[3]	8, 9, 21, and 22
Hashem I[4] and Hashem II[5]	8, 9, 21, and 22

[1] The parties refer to Exhibit 1004 as "Ritter," which is an English translation of DE 19800953 C1. The German patent document has been entered as Exhibit 1015.
[2] The parties refer to Exhibit 1005 as "Van Nee," which is an English translation of Japanese Unexamined Patent Application Publication H10-303849. The Japanese document has been entered as Exhibit 1014.
[3] J. C-I Chuang, N. R. Sollenberger, and D. C. Cox, *A Pilot Based Dynamic Channel Assignment Scheme for Wireless Access TDMA/FDMA Systems*, 2 1993 2ND IEEE INT'L CONF. ON UNIVERSAL PERSONAL COMMC'NS 706–712 (1993). Exhibit 1006 ("Chuang").
[4] U.S. Patent No. 6,721,569 B1 – Hashem et al., Exhibit 1007 ("Hashem I").
[5] U.S. Patent No. 6,701,129 B1– Hashem et al., Exhibit 1008 ("Hashem II").

CLAIM CONSTRUCTION

A. Claim Interpretation

In an *inter partes* review, the Board construes claim terms of an unexpired patent using their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012). Petitioner submits constructions for several claim terms (Pet. 8–12). Patent Owner does not contest Petitioner's constructions. Prelim. Resp. 7–9.

B. "cluster(s)" (claims 8 and 21)

The term "cluster(s)," appears in both independent claims 8 and 21. According to Petitioner, "each cluster," as used in claim 8, is indefinite because there is no antecedent basis for "cluster" in the claim. Pet. 16. Nevertheless, Petitioner asks that we construe "cluster" in the context of claim 8 as a "set of candidate subcarriers." *Id.* Patent Owner does not propose a construction of the term. We do not find a definition of the term in the specification. For purposes of this Decision, we adopt Petitioner's construction that "cluster" refers to a "set of candidate subcarriers," which appears to reflect the plain meaning of the term in context.

C. "pilot symbol(s)" (claims 8 and 21)

In another proceeding involving the '748 patent, a court construed the term "pilot symbols" to mean "symbols, sequences, or signals known to both the base station and subscriber." Pet. 7; Ex. 1009, 17. The '748 patent specification states that "pilot symbols" embrace different types of

sequences and pilot signals. *See, e.g.*, Ex. 1003, 5:28–30. Both Petitioner and Patent Owner agree with the court's construction. Pet. 7; Prelim. Resp. 8. According to the '748 specification,

> Referring to FIG. 1B, each base station periodically broadcasts pilot OFDM symbols[6] to every subscriber within its cell (or sector) (processing block **101**). The pilot symbols, often referred to as a sounding sequence or signal, are known to both the base station and the subscribers. In one embodiment, each pilot symbol covers the entire OFDM frequency bandwidth. The pilot symbols may be different for different cells (or sectors). The pilot symbols can serve multiple purposes: time and frequency synchronization, channel estimation and signal-to-interference/noise (SINR) ratio measurement for cluster allocation.

Ex. 1003, 5:32–42. For purposes of this decision, we adopt the prior court's construction.

CLAIM CHALLENGES

A. Ritter, Van Nee, and Chuang

Petitioner submits that the subject matter of claims 8, 9, 21, and 22 would have been obvious over the combination of Ritter, Van Nee, and Chuang. Petitioner submits a detailed analysis of each of the claims, applies the prior art, and relies on the testimony of Professor Nicholas Bambos. Pet. 13–33; Exhibit 1011.

Patent Owner argues that Ritter, Van Nee, and Chuang do not teach or suggest the limitation of claim 8 requiring that a subscriber send an

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[6] We understand that the symbols are transmitted as particular modulations of one or more subcarriers.

indication of coding and modulation rates[7] that the subscriber desires to employ for each cluster. Prelim. Resp. 12. According to Patent Owner, in the Ritter arrangement, the network only knows that for a given user (subscriber) the quality is relatively better than for other users. Patent Owner argues that Ritter provides neither channel information (only a priority list) nor coding and modulation rates, as required by claim 8. Prelim. Resp. 13.

However, Petitioner relies upon Van Nee for its teaching regarding the selection of coding and modulation rates. Pet. 16. Van Nee describes a "remote station" or "mobile unit" containing a "dynamically scalable OFDM transmitter", which in turn contains a "dynamic control circuit" sending an indication of coding and modulation rates "dynamically scaled or adjusted," "coding rate," and "carrier modulation scheme." Ex. 1005, 7, right col.

Patent Owner further argues that neither Van Nee nor Chuang selects coding or modulation rates on a "cluster" basis. Prelim. Resp. 13. Per our construction of "cluster," adopted for purposes of this Decision, the claims embrace the Van Nee disclosure.

Patent Owner argues that Ritter, Van Nee, and Chuang do not teach using pilot symbols to measure channel and interference information as required by claims 8 and 21. Prelim. Resp. 16. Patent Owner correctly notes (*id.* at 16) that neither Ritter nor Van Nee discloses the use of pilot symbols. Petitioner relies on Chuang for this claim feature. Pet. 14 (citing Ex. 1006, 3 (lines 12–19)). The cited portion of Chuang describes each

[7] *E.g.*, in one embodiment the '748 patent chooses between quadrature phase shift keying (QPSK) and 16 quadrature amplitude modulation (QAM). Exhibit 1003, 3:32–42, 7:59–65.

"port" transmitting a beacon on a downlink control frequency. "Portables" measure the signal strength of the beacons to select a port with which to communicate.

Patent Owner argues (Prelim. Resp. 19) that Chuang does not describe using pilot symbols from the base station that is carrying out subcarrier allocation among subscribers. However, Chuang describes a port transmitting an RF pilot signal at a controlled power to enable all portables to make measurements corresponding to interference of all possible traffic channels. Ex. 1006, 3 ("2.3 Pilots"). Chuang further describes portables making measurements based on pilots corresponding to downlinks on a "short list" and chooses channels that have the lowest measured interference. *Id.* at 3 ("2.4 DCA procedures)".

For reasons stated above, on the record developed thus far, Petitioner has demonstrated a reasonable likelihood it would prevail in a challenge to claims 8, 9, 21 and 22 based on the combined teachings of Ritter, Van Nee, and Chuang.

B. Hashem I and Hashem II

Petitioner submits that the subject matter of claims 8, 9, 21, and 22 would have been obvious over the combination of Hashem I and Hashem II. Petitioner submits a detailed analysis of each of the claims, applies the prior art, and relies on the testimony of Professor Nicholas Bambos. Pet. 33–49; Exhibit 1011.

Both Hashem I and Hashem II describe single user OFDM systems and not OFDMA systems having multiple subscribers. Hashem I describes dynamically assigning sub-carriers for transmission of data in a radio

communications system. Ex. 1007, Abstract. Hashem II describes adapting modulation schemes based on changing channel quality. Ex. 1008, Abstract.

Patent Owner argues (Prelim. Resp. 25) that Hashem I is directed to a "single-user" OFDM system, and not to a multiple-user OFDMA system. Therefore, according to Patent Owner, Hashem I and Hashem II to not teach OFDMA. Prelim. Resp. 25. Petitioner recognizes this deficiency and argues that disclosure of multiple mobile stations is "inherent" in Hashem I because the interference measured by a Hashem I subscriber would be generated by other mobile stations. Pet. 40. Petitioner's inherency argument is speculative at best. We agree with Patent Owner (Prelim. Resp. 26) that there are many possible sources of interference.

Petitioner also argues that it would have been obvious to apply Hashem I to a multiple user system. Pet. 40. In support, Petitioner points to Hashem I's statement that the invention can be used with other systems, which employ multiple sub-carriers simultaneously. Pet. 40 (citing Ex. 1007, 9:12–16). However, this portion of the Hashem I specification merely states that Hashem I is not limited to OFDM systems. No mention is made of multiple mobile stations. A fair reading does not demonstrate that Hashem I had multiple users in mind. Patent Owner correctly notes that there are ways other than OFDMA to employ OFDM (such as used in Hashem I) in multiple user systems. Prelim. Resp. 27.

Patent Owner argues (Prelim. Resp. 28–34) that Hashem I does not describe the multiple step process of selecting subcarriers required by claim 8. According to Hashem I, a single remote unit is allocated all subcarriers that it requests. There is no need for the base station to make a selection of subcarriers from "candidate" subcarriers requested by a subscriber unit.

Patent Owner further agues (Prelim. Resp. 34–35) that Hashem I and Hashem II do not describe providing feedback by subscribers in a first cell regarding desired clusters of subcarriers as required by claim 21. As with claim 8, Petitioner relies on inherency to adapt Hashem I to a multi-subscriber environment by arguing that the interference referred to in Hashem I would have been generated by other subscribers. We are not persuaded by Petitioner's inherency argument.

Patent Owner argues that Petitioner's reliance (Pet. 45–46) on Hashem I as teaching allocating OFDMA subcarriers in clusters as required by claim 21 is not well-founded. Prelim. Resp. 35–36. Again we note that Hashem I is a single user system.

Patent Owner further argues that Hashem I and Hashem II fail to describe the claim 21 limitation that each of the subscribers measures interference information for the plurality of subscribers. Petitioner's reliance on Hashem I (Pet. 46) is misplaced, its inherency argument (Pet. 48) notwithstanding.

For reasons stated above, Petitioner has not demonstrated a reasonable likelihood it would prevail in a challenge to claims 8, 9, 21, and 22 based on the combined teachings of Hashem I and Hashem II.

C. Objective Evidence of Non-Obviousness

Patent Owner submits that there are "objective indicia" that demonstrate non-obviousness of the invention. We address first the evidence that Patent Owner places under the category of "skepticism of the experts." Prelim. Resp. 41–50.

Patent Owner submits Exhibits 2002–2004 to explain consideration by industry experts contemplating the next Universal Mobile Telecommunication System standard. *Id.* at 42. According to Patent Owner, these documents "explain[] three OFDMA based approaches referred to collectively as 'Concept β.'" *Id.* at 44. Patent Owner argues that in meetings of the European Telecommunication Standards Institute ("ETSI") delegates were asked to vote for one of the "four proposed concepts," which included Concept β. Prelim. Resp. 45. Concept β received zero percent of the votes, while votes went to other "approaches" that did not include OFDM or OFDMA. *Id.* at 45–46.

Patent Owner, however, does not point to evidence that establishes *why* Concept β was disfavored by the ETSI delegates. Nor does Patent Owner explain how any of the OFDMA based approaches might relate to the claimed invention, other than the fact that the claims recite "OFDMA." Because Patent Owner characterizes the evidence as showing "skepticism of the experts," the evidence is presented, presumably, to demonstrate that the Concept β "OFDMA based approaches" were thought to represent impossible or impractical technologies as late as the ETSI second meeting, January 1998 (Ex. 2004, 7). At the time of invention,[8] however, OFDMA was known to be a method that supports multiple access for multiple subscribers. Ex. 1003, 1:26 2:5.

Patent Owner also refers to the Caloyannides Report as demonstrating commercial success of "4G/LTE based products." Prelim. Resp. 49. The

[8] On this record, the date of invention is the filing date of the '748 patent application, December 15, 2000, or nearly three years after the second ETSI meeting.

Caloyannides Report, however, does not refer to any evidence in this record of commercial success of "4G/LTE based products," nor does it refer to any evidence in this record tending to show that limitations from claim 8, which are reproduced in the Caloyannides Report, were responsible for any "commercial success." *See* Ex. 2001 ¶ 344 ("Further information and evidence about the commercial success that has followed the use of these aspects of the ['748 patent] is provided in my infringement report involving the same patent[]"). The "infringement report" referenced by Exhibit 2001 has not been provided as an exhibit in this proceeding. Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight. 37 C.F.R. § 42.65(a).

Moreover, even if commercial success were established, Patent Owner's allegations would not support a prima facie case of nexus.

> A prima facie case of nexus is generally made out when the patentee shows both that there is commercial success, and that the thing (product or method) that is commercially successful is the invention disclosed and claimed in the patent. When the thing that is commercially successful is not coextensive with the patented invention—for example, if the patented invention is only a component of a commercially successful machine or process—the patentee must show prima facie a legally sufficient relationship between that which is patented and that which is sold.

Demaco Corp. v. F. Von Langsdorff Licensing Ltd., 851 F.2d 1387, 1392 (Fed. Cir. 1988). However, "if the commercial success is due to an unclaimed feature of the device" or "if the feature that creates the commercial success was known in the prior art, the success is not pertinent." *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006). The Caloyannides Report, paragraph 344, alleges that limitations of claim 8

represent, at most, an "essential element" of only one part of "current LTE networks." Further, to the extent that OFDMA might contribute to "commercial success," OFDMA was known in the prior art and, thus, not pertinent. See Ex. 1003, 1:26–2:5.

For the foregoing reasons, we find Patent's Owner's evidence of secondary considerations to be entitled to little weight in support of non-obviousness. Our weighing of the evidence in support of non-obviousness is for purposes of this Decision only, as we are limited to consideration of the record that exists at this preliminary stage of the proceeding.

CONCLUSION

For the foregoing reasons, we are persuaded that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail with respect to claims 8, 9, 21, and 22.

The Board has not made a final determination on the patentability of any challenged claims or the construction of any claim terms.

ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of the '748 patent is hereby instituted on the following asserted ground: claims 8, 9, 21, and 22, as unpatentable under 35 U.S.C. § 103 over Ritter, Van Nee, and Chuang;

FURTHER ORDERED that the trial is limited to the ground identified above and no other grounds are authorized; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial

commences on the entry date of this Decision.

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