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Muncy, Geissler, Olds & Lowe, P.C./QUALCOMM
4000 Legato Road, Suite 310
Fairfax, VA 22033

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAMANJIT SINGH
and YELIZ TOKGOZ¹

Appeal 2017-03248
Application 14/593,800
Technology Center 2600

Before JASON V. MORGAN, SHARON FENICK, and
AARON W. MOORE, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

DECISION ON APPEAL

Introduction

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–30. We have jurisdiction under 35 U.S.C. § 6(b)(1).

We REVERSE.

Invention

Appellants' Specification relates to wireless telecommunications such as cellular networks, and specifically to handling requests for a user equipment (UE) to be serviced by a small cell base station. Spec. ¶¶ 1, 2, 7,

¹ Appellants identify Qualcomm, Inc., as the real party in interest. App. Br. 3.

and 27–28. A small cell base station is “typically [a] low-power base station[]” which may supplement macro cell base stations. *Id.* ¶¶ 2, 29. A macro cell base station provides coverage to a large number of users. *Id.* ¶ 28. “[A]s a user device moves through such a mixed communication network environment that provides both macro cell and small cell coverage, the user device may be served in certain locations by macro cell base stations, at other locations by small cell base stations, and, in some scenarios, by both macro cell and small cell base stations.” *Id.* ¶ 38. In certain situations, however, transfers of a UE to a small cell base station may be undesirable. *Id.* ¶¶ 52–55. The Specification describes how a small cell base station

can mitigate undesirable inter-frequency handovers from macro cell base stations by determining if an incoming inter-frequency handover from a macro cell base station . . . is desirable. If the handover is desirable, the small cell base station can accept the handover, and if it is undesirable, the small cell base station can reject the handover.

Id. ¶ 56.

Exemplary Claim

Claims 1, 18, 29, and 30 are independent. Claim 1, reproduced below, is exemplary:

1. A method of handling undesirable inter-frequency cell changes, comprising:
 - receiving, at a small cell base station, a request to perform a cell change of a user equipment (UE) from a base station serving the UE to the small cell base station, wherein the base station serving the UE is operating on a different frequency than the small cell base station;

receiving, at the small cell base station from the base station, parameters related to one or more previous cell changes performed by the UE;

determining whether or not the cell change is desirable based on the parameters related to the one or more previous cell changes; and

accepting or rejecting, at the small cell base station, the request to perform the cell change based on the determining.

Rejections on Appeal

The Examiner rejects claims 1, 18, 29, and 30 under 35 U.S.C. § 103 as unpatentable over a combination of Mildh et al. (US 2013/0231116 A1; published Sept. 5, 2013, hereinafter “Mildh”), Yiu et al. (US 2015/0215837 A1; published July 30, 2015, hereinafter “Yiu”), and Kim et al. (US 2015/0087313 A1; published Mar. 26, 2015, hereinafter “Kim”). Final Action 3–6.

The Examiner rejects claims 1, 2, 4, 6–10, 15–22, and 27–29 under 35 U.S.C. § 103 as unpatentable over a combination of Oh et al. (US 2015/0230148 A1; published Aug. 13, 2015, hereinafter “Oh”) and Kim. Final Action 6–11.

The Examiner rejects claims 3 and 5 under 35 U.S.C. § 103 as unpatentable over a combination of Oh, Kim, and Park et al. (US 2014/0376363 A1; published Dec. 25, 2014, hereinafter “Park”). Final Action 11–12.

The Examiner rejects claims 11–14, 23–26, and 30 under 35 U.S.C. § 103 as unpatentable over a combination of Oh, Kim, and Yiu. Final Action 12–14.

ANALYSIS

Issues: (A) Did the Examiner err in finding that the combination of Mildh, Yiu, and Kim teaches or suggests “receiving, at the small cell base station from the base station, parameters related to one or more previous cell changes performed by the UE,” as recited in claim 1?

(B) Did the Examiner err in finding that the combination of Oh and Kim teaches or suggests “receiving, at the small cell base station from the base station, parameters related to one or more previous cell changes performed by the UE,” as recited in claim 1?

(A) Rejection over a combination of Mildh, Yiu, and Kim

Appellants argue claims 1, 18, 29, and 30 together as a group (Appeal Br. 5–7), so we select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2015).

The Examiner makes a finding that Mildh teaches “receiving, from the base station, parameters related to one or more previous cell changes.” Final Action 4 (emphasis added). The Examiner notes Mildh’s disclosure that “a control node . . . has access to historical transaction information for a served mobile station, which may be used . . . to improve handover decisions.” Final Action 4 (quoting Mildh ¶ 10; also citing *id.* ¶¶ 23, 28).

Appellants argue that this finding “makes no mention of the claimed ‘receiving, at the small cell base station from the base station’” such parameters. Appeal Br. 5 (quoting claim 1 with added emphasis). Appellants argue that the Examiner “at most alleges only that Mildh teaches a separate ‘control node’” having access to historical transaction information. *Id.* 5–6. Thus, Appellants argue that the Examiner has not

shown that Mildh teaches or suggests the “receiving” step, which requires the parameters be received at the small cell base station. *Id.*

The Examiner responds that Kim was brought in to address deficiencies in Mildh’s teachings relating to the claim element regarding “accepting or rejecting, at the small cell base station, the request to perform the cell change based on the determining.” Answer 17–18; *see also* Final Action 5–6. The Examiner notes Kim’s discussion of a UE handover to an “unprepared” small cell—one that does not have state/context information for the handover. Answer 17 (citing Kim ¶¶ 63). Thus, the Examiner reasons, Kim suggests a prepared small cell, for which “state information for UE handover is acquired from Base station.” *Id.* The Examiner further notes Kim’s discussion of calculation and estimation of mobility history for a node. *Id.* at 17–20 (citing Kim ¶¶ 7, 8, 33, 43).

We agree with Appellants (*see* Reply Br. 2) that the Examiner’s focus on the “accepting or rejecting” limitation does not directly address the “receiving, at the small cell base station from the base station” limitation. Additionally, we agree with Appellants that, “even if it can be inferred [from Kim] that a small cell may in other instances acquire ‘the state context of the cell for handover of the UE,’ the state context information that allows handover to be setup successfully is not the same as the mobility state information that indicates a UE’s speed, number of cell reselections, etc.” Reply Br. 3–4. We also agree that to the extent Kim discusses a UE calculating mobility state information (“parameters related to one or more previous cell changes performed by the UE”), this information is disclosed as being received from a UE by a base station, not that it is received or used “at a small cell base station from the base station.” *See id.* at 4.

Accordingly, we do not sustain the Examiner's obviousness rejection based on the combination of Mildh, Yiu, and Kim of claims 1, 18, 29, and 30.

(B) Rejections over a combination including Oh

Appellants argue claims 1, 2, 4, 6–10, 15–22, and 27–29 together as a group, so we select claim 1 as representative. *See* Appeal Br. 7–10; 37 C.F.R. § 41.37(c)(1)(iv) (2015).

In the Final Action, the Examiner makes findings that Oh teaches “receiving, from the base station, parameters related to one or more previous cell changes.” Final Action 6 (emphasis added). The Examiner notes Oh's disclosure of a cell position database which accumulates information regarding the lengths of stays for terminals (UEs) in cells. *Id.* at 6–7 (citing Oh ¶¶ 39, 40).

Appellants again argue that this finding “makes no mention of the claimed ‘receiving, at the small cell base station from the base station,’” such parameters. Appeal Br. 7–8 (quoting claim 1 with added emphasis). Appellants argue that the cell position database of Oh is not accessible by the source base station or the target base station of the handover process of Oh. *Id.* at 8. We agree.

In the Answer, the Examiner responds, referring again to Kim, which the Examiner again finds “as discussed in detail above [with relation to the Mildh/Yiu/Kim combination] discloses accepting or rejecting request for cell change based on determining that is based on the parameters of previous cell change, performed at small cell base station.” Answer 21. As discussed above, we do not find such a teaching or suggestion in Kim.

Accordingly, we do not sustain the Examiner's obviousness rejection of claims 1, 2, 4, 6–10, 15–22, and 27–29 based on the combination of Oh and Kim. The rejections of claims 3, 5, 11–14, 23–26, and 30 are argued on substantially the same basis, and the Examiner does not find that the limitation discussed above is taught or suggested by the other prior art references combined with Oh and Kim in the rejections of those claims. *See* Appeal Br. 10–11; Final Act. 11–14. Thus, we additionally do not sustain the Examiner's obviousness rejections of these claims.

DECISION

We reverse the Examiner's decision rejecting claims 1, 18, 29, and 30 under 35 U.S.C. § 103 as unpatentable over a combination of Mildh, Yiu, and Kim.

We reverse the Examiner's decision rejecting claims 1, 2, 4, 6–10, 15–22, and 27–29 under 35 U.S.C. § 103 as unpatentable over a combination of Oh and Kim.

We reverse the Examiner's decision rejecting claims 3 and 5 under 35 U.S.C. § 103 as unpatentable over a combination of Oh, Kim, and Park.

We reverse the Examiner's decision rejecting claims 11–14, 23–26, and 30 under 35 U.S.C. § 103 as unpatentable over a combination of Oh, Kim, and Yiu.

REVERSED