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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FREDRIK GUNNARSSON and BO HAGERMAN

Appeal 2010-004174
Application 10/594,122
Technology Center 2600

Before DENISE M. POTHIER, JEFFREY S. SMITH, and
BRUCE R. WINSOR, *Administrative Patent Judges*.

POTHIER, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 39-48 and 52-66. Claims 1-38 and 49-51 have been canceled. App. Br. 3.¹ We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ Throughout this opinion, we refer to the Appeal Brief (App. Br.) filed July 10, 2009, the Examiner's Answer (Ans.) mailed September 30, 2009, and (3) the Reply Brief (Reply Br.) filed November 25, 2009.

Invention

Appellants' invention relates to a handover procedure in cellular communications systems. *See* Spec. 1:4-6. Claims 39 and 40 are reproduced below with the key disputed limitations emphasized:

39. A method of triggering a handover-related procedure for a user equipment in a cellular communications system, comprising:

classifying cells of said communications system into multiple handover-related classes based on radio coverage characteristics associated with said cells, each handover-related class comprises multiple cells;

assigning, for each handover-related class, a handover signal strength threshold;

generating a handover triggering command based on measured signal quality for a communications link between said user equipment and a base station of a cell and on an assigned handover signal strength threshold associated with the handover-related class of said cell; and

transmitting said handover triggering command to said user equipment, said handover triggering command allowing said user equipment to perform said handover-related procedure involving said cell,

wherein a handover signal strength threshold associated to a first handover-related class of said multiple handover-related classes being different from a handover signal strength threshold associated to a second handover-related class of said multiple handover-related classes.

40. A method for modifying a list of connected cells for a user equipment in a cellular communications system, comprising:

measuring a signal quality for a communications link between said user equipment and a base station of a cell;

receiving a handover signal strength threshold for said cell, *said handover signal strength threshold being determined based on the radio coverage characteristics of said cell*; and

modifying said list based on said measured signal quality and said received handover signal strength threshold.

The Rejection

The Examiner relies on the following as evidence of unpatentability:

Brody	US 4,670,899	June 2, 1987
Barnett	US 5,428,816	June 27, 1995

Claims 39-48 and 52-56 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Barnett and Brody. Ans. 3-12.

THE CONTENTIONS

Regarding representative claim 39, the Examiner finds that Barnett discusses classifying cells in different classes and this discussion teaches the limitation, “a handover signal strength threshold associated to a first handover-related class of said multiple handover-related classes being different from a handover signal strength threshold associated to a second handover-related class of said multiple handover-related classes.” Ans. 4, 14 (citing col. 7, ll. 3-13 and col. 8, ll. 11-33). Appellants argue Barnett and Brody fail to teach the above recitation. App. Br. 9, 12. Appellants admit that the cited passage in Barnett discusses classifying cells and assigning priorities (App. Br. 10; Reply Br. 2, 4) but asserts “Barnett does not teach or suggest classifying the cells to assign different handover signal strength thresholds associated with different handover-related classes” (App. Br. 10).

Regarding representative claim 40, Appellants argue that Barnett does not teach or suggest the handover signal strength threshold is determined based on the radio coverage characteristics of the cell. App. Br. 14-15.

ISSUES

Under § 103, has the Examiner erred by finding that Barnett and Brody collectively would have taught or suggested:

(1) a handover signal strength threshold associated to a first handover-related class of the multiple handover-related classes being different from a handover signal strength threshold associated to a second handover-related class of the multiple handover-related classes as recited in claim 39?

(2) the handover signal strength threshold being determined based on the radio coverage characteristics of said cell as recited in claim 40?

ANALYSIS

Claims 39, 46-48, and 52-54

Based on the record before us, we find no error in the Examiner's rejection of representative claim 39. The crux of this appeal centers around the meaning of "a handover signal strength threshold associated to a first handover-related class" and "a handover signal strength threshold associated to a second handover-related class" as recited in claim 39. We, thus, begin by construing these key disputed limitations. During examination of a patent application, a claim is given its broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (internal citations and quotations omitted). As such and as indicated by the Examiner (Ans. 16), we will give the phrases, "a handover signal strength threshold associated to a first handover-related class" and "a handover signal strength threshold associated to a second handover-related class," their broadest reasonable construction.

Appellants point to Figures 8 and 9 in the Specification for an understanding of this term. *See* App. Br. 9-10. Appellants describe a first handover parameter or threshold T_1 (shown in Figure 8) for a first class of cells and a second handover parameter or threshold T_2 (shown in Figure 9) for a second class of cells used to determine when a handover procedure or event is to be triggered. Spec. 17:2-9. Yet, these are just non-limiting examples of thresholds, for the phrase, “handover signal strength threshold” associated with a class, has not been defined in the Specification. *See generally* Specification. Appellants have also not demonstrated that the disputed phrases have a particular meaning in the art, such that an ordinary artisan would have construed these phrases to have a specific meaning. *See* App. Br. 9-10. Thus, as broadly as recited, we find that a handover signal strength threshold is a signal strength threshold that relates to a handover and has some association with a handover-related class.

The Examiner maps the RSSI-SRV and RSSI-C values in Barnett to the recited handover signal strength thresholds. *See* Ans. 4, 14 (citing col. 7, ll. 3-13, col. 8, ll. 11-33). These passages discuss three classes of cells (i.e., Class I-III). Col. 7, ll. 3-13. Class II cells are determined based on both a RSSI-SRV value, which corresponds to a radio frequency (RF) signal strength of a mobile unit operating in a servicing cell (col. 6, ll. 21-23, col. 7, ll. 5-8), and a RSSI-MSR value, which corresponds to a RF signal strength measurement threshold (col. 6, ll. 31-37, col. 7, ll. 5-8). When $\text{RSSI-MSR} > \text{RSSI-SRV}$, the cells are included in a handoff measurement list and RSSI-SRV acts as a signal strength threshold. *See id.* Also, contrary to Appellants’ assertion (App. Br. 12), the RSSI-MSR is also a signal strength value that relates to a handover given that Barnett describes the RSSI-MSR

as a “handoff” signal strength threshold (col. 6, ll. 66-68). Barnett thus teaches, as broadly as recited, a first handover signal strength threshold associated “to a first handover-related class” (e.g., Class II).

Additionally, Barnett also describes Class III cells are determined based on RF signal strength threshold (RSSI-C). Col. 7, ll. 8-12. While this value is not further described in Barnett, Barnett discusses a “handoff measurement mechanism” can be based on mobile assisted handoff whenever a particular class of cells (e.g., Class III) is present in a neighboring list (col. 5, ll. 20-22, 28-30), suggesting that a particular class (e.g., Class III) in a list has a relationship to handoff or handover determinations. Barnett also states that cells which meet a measurement class criteria are ordered in a list in a particular fashion (col. 5, ll. 42- 44) and that a measurement order is performed on the highest ordered neighboring cells to determine a suitable cell for handoff (col. 5, ll. 51-62). As the Examiner indicates (Ans. 13-14), the import of the above discussions demonstrates that while the RSSI-C value in Barnett is not used immediately to determine a handoff, the value determines a cell class, which in turn is used as part of a measurement order to determine a suitable cell for handoff.

We therefore disagree that the RSSI-SRV and RSSI-C are only used to determine whether each neighboring cells will be included in a cell list (App. Br. 10; *see also* Reply Br. 2) and that the Examiner has “mistakenly” equated the signal levels RSSI-MSR (or RSSI-SRV) and RSSI-C in Barnett with the handover signal strength thresholds as recited (App. Br. 12). As explained above, we find that the Examiner has demonstrated two different handover signal strength thresholds for different handover-related classes as broadly as recited. Thus, Appellants’ argument (App. Br. 13-14; Reply Br.

5) that Barnett fails to teach the generating step because Barnett teaches the same handoff criteria for all the cells is unpersuasive.

Appellants further contend that Barnett only teaches a single threshold being used to determine whether to perform a handover procedure. *See* App. Br. 12-13; Reply Br. 3-5. As stated above, we find the phrase, “handover signal strength threshold,” as broadly as recited, includes a threshold related to the handover procedure more generally. Moreover, Appellants have cited to portion of Barnett (Ans. 12 (citing col. 5, ll. 6-8)) that discusses a fixed threshold for *calibrating* the system initially. Barnett further indicates that a RSSI-THP signal strength (see Reply Br. 5 n. 4) is a *dynamic* cell selection threshold determined according to certain operating criteria. Col. 6, ll. 27-29. Additionally, when discussing claim 40, Appellants admit that an ordinary artisan would have known to use “a set of fixed thresholds” App. Br. 15.

For the first time in the Reply Brief, Appellants discuss that the problems to be solved are completely different in Barnett and the present invention. *See* Reply Br. 2-3. These arguments are waived. *See Ex parte Borden*, 93 USPQ2d 1473, 1474 (BPAI 2010) (informative) (“[T]he reply brief [is not] an opportunity to make arguments that could have been made in the principal brief on appeal to rebut the Examiner's rejections, but were not.”). Nonetheless, to the extent Appellants are arguing that Barnett is non-analogous art, we disagree. Barnett is in the same field of endeavor as Appellants – cellular handoff procedures. *Compare* Spec. 1:4-6 with Barnett, col. 1, ll. 8-10.

Based on the above discussion, we need not address whether Brody cures any alleged deficiency in Barnett. App. Br. 13.

For the foregoing reasons, Appellants have not persuaded us of error in the rejection of independent claim 39 and claims 46-48 and 52-54, not separately argued with particularity.

Claims 40-45 and 55-66

Independent claim 40 is broader in scope than independent claim 39. Namely, claim 40 does not recite the disputed handover signal strength threshold associated with a first handover-related class of said multiple handover-related classes being different from a handover signal strength threshold associated with a second handover-related class of said multiple handover-related classes. Thus, any argument concerning this limitation is not applicable to claim 40.

Given that claim fails to recite different thresholds, Appellants assert that Barnett fails to teach a handover signal strength threshold is determined based on the radio coverage characteristics of any particular cell and thus does not teach the recited receiving and modifying steps. App. Br. 14-15. Specifically, Appellants contend that Barnett's handover threshold is fixed for all cells regardless of their measurement class and thus is not based on the radio coverage characteristics of any particular cell. App. Br. 14. Appellants further assert Brody does not disclose class-specific handover thresholds and does not cure this deficiency. App. Br. 15. We disagree.

First, the Examiner has relied upon Brody – not Barnett – to teach to the recitation of the “handover signal strength threshold being determined based on the radio coverage characteristics of [the] cell[.]” *See* Ans. 5 (citing Brody, col. 24, ll. 6-28). Thus, any arguments concerning Barnett and the threshold not being determined based on the radio coverage

characteristics of a cell does not squarely address the Examiner's position. Nonetheless, the phrase, "radio coverage characteristics of a cell" has not been explicitly defined. *See generally* Specification. Barnett teaches an ordinarily skilled artisan would appreciate a cell's boundaries (e.g., its coverage) are determined by radiated power of the base transceiver and mobile phone (e.g., coverage characteristics) and a cell's boundaries are set by or relate to a threshold value (*see* col. 1, ll. 14-25). Barnett also teaches that the measurement class is determined according to terrain, topology, and other factors influencing their transmission and reception capabilities. Col. 5, ll. 34-38.

Second, claim 40 does not recite *class specific* handover thresholds but rather "a handover signal strength threshold for [a] cell." We therefore find Appellants' argument concerning Brody failing to disclose any class-specific handover thresholds is not commensurate in scope with the claim. Third, the Examiner has provided some reason with a rational underpinning to combine the teachings of Brody with Barnett. *See* Ans. 5. These findings and conclusions remain un rebutted.

Regarding claim 41, Appellants refer to the arguments made with regard to claim 39. *See* App. Br. 15 (stating "[i]t is demonstrated above that the Barnett and Brody combination does not teach or suggest these features.") We are not persuaded for the reasons previously discussed.

Regarding claims 56 and 63, Appellants argue that, because Barnett and Brody do not teach different signal strength thresholds, the combination also cannot teach each handover-related class is associated with a "unique" handover signal strength threshold. App. Br. 16. We are not persuaded for the reasons previously set forth.

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For the foregoing reasons, Appellants have not persuaded us of error in the rejection of (1) claims 40, 41, and 56, and (2) claims 42-45, 55, and 57-66 not separately argued with particularity.

CONCLUSION

The Examiner did not err in rejecting claims 39-48 and 52-66 under § 103.

DECISION

The Examiner's decision rejecting claims 39-48 and 52-66 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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