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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YASSIN ADEN AWAD, YASUSHI MARUTA, and TOSHIFUMI SATO

Appeal 2018-004842
Application 14/993,636
Technology Center 2400

Before BRADLEY W. BAUMEISTER, MICHAEL J. STRAUSS, and RUSSELL E. CASS, *Administrative Patent Judges.*

STRAUSS, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1, 6, 11, 12, 15–18, and 21–24, which constitute all claims pending in this application. Appeal Br. 14–18, Claims Appendix.[2] We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as the NEC Corporation. Appeal Brief filed December 11, 2017 ("Appeal Br."), 2.

[2] Rather than repeat the Examiner's positions and Appellant's arguments in their entirety, we refer to the above mentioned Appeal Brief, as well as the following documents for their respective details: the Final Office Action mailed July 7, 2017 ("Final Act."); the Examiner's Answer mailed February

CLAIMED SUBJECT MATTER

Appellant describes the present invention as follows:

> The present invention relates to a cellular communication system in which a base station communicates with a plurality of mobile communication devices. Spec., Abstract.

Independent claim 1, reproduced below with a dispositive limitation emphasized in *italics*, illustrates the appealed claims:

> 1. A mobile communication device which communicates with a communication apparatus, the mobile communication device comprising:
>
> a memory storing instructions; and
>
> one or more processors configured to execute the instructions to:
>
> receive a physical downlink control channel (PDCCH);
>
> receive a first demodulation reference signal (DMRS) and a second DMRS;
>
> receive a first enhanced PDCCH and a second enhanced PDCCH; and
>
> demodulate the first enhanced PDCCH based on the first DMRS and the second enhanced PDCCH based on the second DMRS,
>
> wherein the first DMRS is associated with the first enhanced PDCCH,
>
> wherein the second DMRS is associated with the second enhanced PDCCH,
>
> wherein the first DMRS is transmitted, from the communication apparatus, on a first two antenna ports, and
>
> *wherein the second DMRS is transmitted, from the communication apparatus, on a second two antenna ports*.

5, 2018 ("Ans."); and the Reply Brief filed April 5, 2018 ("Reply Br."). Oral argument was held on December 9, 2019. A copy of the transcript will be added to the record in due course.

STATEMENT OF THE REJECTIONS[3]

The Examiner bases the prior-art rejections on the following references:

Name	Reference	Date
Nam et al.	US 2011/0103324 Al	May 5, 2011
Fong et al.	US 2011/0170496 Al	July 14, 2011
Kim et al.	US 2011/0194536 Al	Aug. 11, 2011

Claims 1, 6, 11, 12, 15–17, and 21–23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fong, Kim, and Nam. Final Act. 5–11.

Claims 18 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fong, Nam and/or Kim. Final Act. 11–14.

STANDARD OF REVIEW

We review the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

DETERMINATIONS AND ARGUMENTS

The Examiner finds Fong discloses the limitations of claim 1 except for the requirement for both first and second enhanced physical downlink control channels (ePDCCHs) wherein a second demodulated reference signal (DM-RS) is associated with the second ePDDCH and is transmitted from the communications apparatus on a second two antenna ports. Final

[3] A nonstatutory double patenting rejection was overcome by the filing of a terminal disclaimer. Ans. 3.

Act. 5–7. To address the noted deficiency, the Examiner finds "Kim teaches using multiple DM-RS antenna ports for a single [user equipment (UE), (i.e., the mobile communications device of claim 1)] and support for [multiple input multiple output (MIMO)] where the [evolved Node B) (eNB) (i.e., base station or the communications apparatus referenced by claim 1)] can transmit data on at least 3 DM-RS antenna ports to one/more UE's." *Id.* at 7. The Examiner further finds that "Nam teaches the ability to transmit data to a user using a SUBSET of ANTENNA PORTS." *Id.* at 8.

According to the Examiner,

> It would have been obvious to one skilled in the art at the time of the invention, to modify Fong, such that both first and second E-PDCCH's and wherein the second DMRS is associated with the second enhanced PDCCH, on a first two antenna ports (for the first DMRS), wherein the second DMRS is transmitted, from the communication apparatus, on a second two antenna ports to provide multiple D[M]RS's for E-PDCCH reception/ demodulation across multiple antenna ports for MIMO transmission (which is per the new standard, more optimal than SISO, etc.).

Id. at 9.

Appellant contends

> [T]he combination does not ***disclose a second enhanced PDCCH*** based on a ***second DMRS***, where the first DMRS and ***second DMRS*** are ***associated with*** the first enhanced PDCCH and ***second enhanced PDCCH***, respectively, and where the communication apparatus transmits the first DMRS and ***second DMRS*** from a first two antenna ports and second two antenna ports, respectively.

Appeal Br. 11.

The Examiner responds, repeating the earlier finding that Kim teaches using multiple DMRS/DM-RS antenna ports for a single UE and support for MIMO using multiple antenna ports. Ans. 6. The Examiner further finds:

> Nam teaches the ability to transmit data to a user using various subset(s) of antenna ports (which dovetails with Fang's figure 10 and Para #100). Hence any subset of antennas (such as the DMRS signals being transmitted on first/second antenna ports - Note that the claim does **not** state that the ports are different, just that they are identified as first/second antenna ports).

Id.

The Examiner concludes that "[t]he references combine to teach using different/multiple antenna ports AND the transmitting of multiple DMRS, e-PDCCH signals, that is, the ability to transmit first/second e-PDCCH's /DMRS's on multiple antenna ports (along with how they would correlate to each other for demodulation)." *Id.* at 7.

Appellant replies,

> The Examiner's Answer . . . asserts that Nam teaches the ability to transmit data to a user using various subsets of antenna ports. Examiner's Answer at p. 6. However, even if Nam arguably discloses transmitting data using subsets of antenna ports, the cited portions of Nam at most arguably disclose a first PDCCH. Nam at [0024]-[0009], [0038]. That is, like Fong and Kim, cited portions of Nam also fail to disclose a ***second*** DMRS or a ***second*** PDCCH, let alone a ***second*** enhanced PDCCH. *Id.* Therefore, Nam also fails to disclose, teach, or suggest one or more processors configured to execute the instructions to receive a second DMRS, receive a ***second*** PDCCH, and demodulate the ***second*** enhanced PDCCH based on the ***second*** DMRS; the ***second*** DMRS is associated with the ***second*** enhanced PDCCH;

> and the ***second*** DMRS is transmitted on a ***second*** two antennae ports, as recited in claim 1.

Reply Br. 4.

ANALYSIS

Appellant's argument persuades us that the Examiner's rejection is in error. As a matter of claim construction, we disagree that the "first two antenna ports" and the "second two antenna ports" may be the same two antenna ports. Where a claim lists elements separately, the clear implication is that those elements are distinct components of the patented invention. *Becton, Dickinson and Co. v. Tyco Healthcare Grp.*, LP, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (citing *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404–05 (Fed. Cir. 1996)). Thus, it is insufficient that Nam discloses multiple antenna ports if, as here, Nam in combination with Fong and Kim fails to teach or suggest the second DMRS being transmitted on a second two antennae distinct from the first two antennae used to transmit the first DMRS. Because the Examiner fails to find the prior art teaches or suggests the first DMRS is transmitted on the first two antenna ports and the second DMRS is transmitted on the second two antenna ports that are distinct from the first two antenna ports, we do not sustain the rejection of independent claims 1, 6, 11, and 12. For the same reason, we do not sustain the rejection of claims 15–18 and 21–24, which depend from claims 11 and 12. Because we agree with at least one of the arguments advanced by Appellant, we need not reach the merits of Appellant's other arguments.

ISSUES NOT CONSIDERED

We note, in an *ex parte* appeal, the Board "is basically a board of review—we review . . . rejections made by patent examiners." *Ex parte Gambogi*, 62 USPQ2d 1209, 1211 (BPAI 2001). "The review authorized by 35 U.S.C. Section 134 is not a process whereby the examiner . . . invite[s] the [B]oard to examine the application and resolve patentability in the first instance." *Ex parte Braeken*, 54 USPQ2d 1110, 1112 (BPAI 1999). Because we are a board of review and not a place of initial examination, we do not engage in a *de novo* examination supplementing the Examiner's findings in this particular case. Although the Board is authorized to reject claims under new grounds pursuant to 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See Manual of Patent Examining Procedure* (MPEP) § 1213.02 (9th Ed., Mar. 2014).

Furthermore, our decision is limited to the findings before us for review. The Board does not "allow" claims of an application. Rather, the Board's primary role is to review adverse decisions of examiners including the findings and conclusions made by the Examiner. *See* 37 C.F.R. § 41.50(a)(1) ("The Board, in its decision, may affirm or reverse the decision of the examiner in whole or in part on the grounds and on the claims specified by the examiner."). Therefore, despite this Decision reversing the Examiner's rejection, no inference should be made as to whether an alternative claim construction or other prior art may exist that renders the claims unpatentable.

For example, claim 1 is directed to *a mobile communication device* and claim 11 to a method of operating such a device. Both claims recite that

the first and second demodulation reference signals (DMRS) are transmitted on respective first and second pairs of antenna ports *from a communication apparatus*. That is, the claims specify how the inferentially recited *communication apparatus* transmits the DMRS to the affirmatively claimed mobile communication device. As explained above, we reverse the obviousness rejection because the Examiner and Appellant agree that the recitations of the pairs of antenna ports further limit the structures of the mobile communication device, as claimed. Final Act. 7–9; Appeal Br. 9–11.

However, Appellant's Specification indicates that beamforming is employed in order to focus beams emitted from the communication apparatus in a particular direction, and the Specification further indicates that the apparatus's pair of antennas produce beamformed signals by adjusting the phase, and possibly gain, of each stream of signals transmitted from each antenna. Spec. 29:11–30–2.

As such, we question whether and to what extent these claims' recitations of how the inferentially claimed *communication apparatus* transmits a beamformed signal necessarily further limits or distinguishes over the cited art, the structure of the affirmatively claimed mobile communication device that receives the signal, as recited in claim 1. Likewise, we question whether transmission of beamformed signals limits or distinguishes the steps performed by the mobile communication device, as recited in claim 11. Restated, we question whether a mobile communication device necessarily must have any additional components or functionality to receive a beamformed signal, as opposed to a non-beamformed signal.

As another example of an issue we decline to resolve, the claims recite a first and second *enhanced* PDCCH (ePDCCH). Counsel for Appellant indicates at oral argument that the term "enhanced PDDCH" is *not* synonymous with a PDCCH that uses beamforming technology. Rather, the use of beamforming is just one example of an enhanced PDDCH. Moreover, Counsel for Appellant indicates that the term "enhanced" is a relative term with a meaning that may change relative to the state of the technology:

> JUDGE BAUMEISTER: If I can interrupt for a second, before we get into what the art teaches, if you can help me out understanding what constitutes an enhanced PDCCH and what makes it enhanced as opposed to a conventional PDCCH.
>
> MR. NEMTZOW: Certainly, good question. *So enhanced PDCCH is a PDCCH that includes some sort of additional technology compared to a regular conventional PDCCH.* Is that helpful?
>
> JUDGE BAUMEISTER: Is that an objective difference, or is that relative to what point in time we're talking about?
>
> MR. NEMTZOW: *So I think that it could be relevant to what point in time you're talking about.* And I think at the time that this application was filed, one of ordinary skill would understand what kinds of improvements or additional functionality would be included in enhanced PDCCH.
>
> And one of those that's disclosed, at least in our application, would be beam forming which as Your Honors may know is a technology that allows signals to be geographically located, right?

> So you can send a signal instead of broadcasting it to a big, large area and specifically geographically target, for example, a cell phone using that technology.

Transcript 6–7 (emphasis added).

For these reasons, we question whether the claims' recitation of the first and second enhanced PDDCHs renders sufficiently definite the metes and bounds of claim protection being sought. When a term of degree is used in a claim, the Specification must provide some standard for measuring the requisite degree to meet the definiteness requirement of 35 U.S.C. § 112. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005) (citation omitted).

However, the issue of definiteness was not raised on appeal, so we leave it to the Examiner to consider this issue, as well, upon any further prosecution on the merits. *Ex parte Frye*, 94 USPQ2d at 1075 (The Board reviews the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon).

CONCLUSION

We reverse the Examiner's rejection of claims 1, 6, 11, 12, 15–18, and 21–24.

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 6, 11, 12, 15–17, 21–23	103	Fong, Kim, Nam		1, 6, 11, 12, 15–17, 21–23
18, 24	103	Fong, Nam/Kim		18, 24
Overall Outcome	103			1, 6, 11, 12, 15–18, 21–24

REVERSED