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STATEMENT OF THE CASE

Introduction

This is an appeal under 35 U.S.C. § 134(a) from the Examiner’s Final Rejection of claims 1–12, 21–29, and 31–34. Claims 13–20 and 30 are

1 Appellant is the applicant and real party in interest, Texas Instruments Incorporated. Appeal Br. 1. Herein, all references to “Appeal Br.” are to the Substitute Appeal Brief filed February 14, 2017. The Substitute Appeal Brief does not contain a Claims Appendix. Thus, all discussion regarding claim language is based on the Claims Appendix filed with the original Appeal Brief, filed August 24, 2016.

We AFFIRM-IN-PART.

**Summary of disclosure**

The Specification discloses a method of operating a wireless communication system that includes receiving a virtual cell identification parameter from a remote transmitter, determining a base sequence index and cyclic shift hopping parameter in response, and generating a pseudo-random sequence and reference signal. Abstract.

**Exemplary claims (key limitations emphasized)**

1. A method of operating a wireless communication apparatus comprising:
   - receiving a signal from a base station;
   - selecting a *cell-specific parameter* in response to a first state of the signal, or a *user-specific parameter* in response to a second state of the signal; and
   - generating an uplink reference signal in response to the selected parameter.

2. A method as in claim 1, where the user-specific parameter is a virtual cell identification parameter.

7. A method as in claim 1, comprising:
   - configuring a user equipment with dedicated user-specific uplink control resource allocation parameters for determining an uplink control region for transmitting channel state information reports; and
   - determining the uplink control region for transmitting scheduling requests and Hybrid Auto Repeat Request (HARQ) acknowledgement reports.
12. A method as in claim 11, wherein said SRS resource allocation parameters include one or more of SRS bandwidth configuration, SRS subframe configuration, an indication of whether simultaneous transmission of Hybrid Auto Repeat Request acknowledgement and SRS is permitted within a subframe, and a number of resources allocated for transmitting random access preambles.

21. A method as in Claim 1, wherein sounding reference signal (SRS) ID, \( n_{ID} \) is the first state of the signal.

22. A method as in Claim 1, wherein physical uplink control channel (PUCCH) ID, \( n_{ID} \) is the second state of the signal.

25. A method as in Claim 11, wherein said signal from a base station is a Radio Resource Control (RRC) signal.

34. A method of operating a wireless communication apparatus comprising:

   receiving a cell-specific parameter from a signal sent by a base station;

   receiving a higher layer signal enabled to include a user-specific parameter;

   generating a reference signal for transmission on a physical uplink shared channel (PUSCH) using the cell-specific parameter when a user-specific parameter is not available;

   generating a reference signal for transmission on the PUSCH using a user-specific parameter when a user-specific parameter is available.

Rejections and references

The Examiner rejects claims 1–12, 21–29, and 31–34 under 35 U.S.C. § 112(a) as failing to comply with the written description requirement. Final Act. 4–5.

The Examiner rejects claims 1, 26, 28, and 31–34 under 35 U.S.C. § 112(b) as being indefinite. Final Act. 6–8.

OBJECTION

The Examiner objects to the drawings under 37 C.F.R. § 1.83(a) (2015) for failing “to show every feature of the invention specified in the claims.” Final Act. 3; see also Ans. 14–15. Appellant contends “the objection to the drawings is overcome.” Appeal Br. 14 (citing Spec. Figs. 4–7); see also Reply Br. 6–7. Objections are generally petitionable rather than appealable. See In re Mindick, 371 F.2d 892, 894 (CCPA 1967). The Board may address an objection that is determinative of an appealed rejection. See MPEP § 1201. Such a relationship between the Examiner’s objection and the appealed rejections is not evident here. Therefore, we do not address the merits of the Examiner’s objection.

35 U.S.C. § 112(a)

Claims 1–12 and 21–29

The Examiner finds claim 1 fails to comply with the written description requirement because the subject matter of a cell-specific parameter, a user-specific parameter, and generating an uplink reference signal in response to the selected parameter “is nowhere to be found in the Specification.” Final Act. 5; Ans. 12–13.

2 The Examiner erroneously refers to claim 3 in the body of the rejection. Final Act. 10; Appeal Br. 20; Ans. 16.
Appellant contends the Examiner erred because the Specification provides embodiments that show the inventors had possession of the claimed invention, including the disputed recitations. See Appeal Br. 9 (citing, e.g., Spec. ¶ 27–28, Fig. 6); see also Reply Br. 2–3.

The disputed recitations exist, near identically, in claim 1 as originally filed. The only difference is that claim 1 now recites “generating” rather than “transmitting” the uplink reference signal. “Original claims are part of the original specification and in many cases will satisfy the written description requirement.” Mentor Graphics Corp. v. EVE-USA, Inc., 851 F.3d 1275, 1297 (Fed. Cir. 2017) (citing, e.g., Ariad Pharm., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1349 (Fed. Cir. 2010) (en banc)), cert. dismissed, 139 S. Ct. 44 (2018). Originally filed claims may still fail to meet the written description requirement if they fail to reasonably convey that the inventors had possession of the claimed subject matter as of the filing date of the application. See Ariad, 851 F.3d at 1351. Nonetheless, the originally filed claims being part of the Specification (id. at 1349 (citing In re Gardner, 480 F.2d 879, 879 (CCPA 1973))) undermines the Examiner’s finding that the subject matter of the disputed recitations is nowhere to be found in the Specification (Final Act. 5). Therefore, we agree with Appellant that the evidence of record shows that the inventors had possession of the invention of claim 1 at the time of filing.

For these reasons, we do not sustain the Examiner’s 35 U.S.C. § 112(a) rejection of claim 1, and similarly rejected claims 2–12 and 21–29. Final Act. 4–5; Ans. 13.
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Claims 31–34

The Examiner further finds that the claim 34 recitations of *receiving a higher layer signal enabled to include a user-specific parameter* (with similar recitations in claims 31–33) and *generating a reference signal for transmission on the physical uplink shared channel (PUSCH) using a user-specific parameter when a user-specific parameter is available* do not have sufficient written description support. Final Act. 5; Ans. 13–14.

With respect to the recitation related to a *higher layer signal enabled to include a user-specific parameter*, Appellant contends the Examiner erred because the Specification discloses a user-specific parameter carried by a radio resource control (RRC). See Appeal Br. 7 (citing Spec. ¶¶ 20, 26, 28, and Figs. 5–6), 10 (further citing Spec. ¶¶ 21, 27, 30–31, and Fig. 7); *see also* Reply Br. 4 (further citing Spec ¶ 38). Although Appellant provides several citations to the Specification that relate to a user-specific parameter, none of the citations are directed to the user-specific parameter being included in a *higher layer signal*. Rather, Appellant asserts, without evidence, that “[t]he RRC is well known to those skilled in the art as a higher layer signal.” Appeal Br. 10; *see also* Reply Br. 4. Attorney argument, however, is no substitute for evidence. *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1581 (Fed. Cir. 1989).

As such, we agree with the Examiner that the Specification does not reasonably convey to an artisan of ordinary skill that the inventors had possession of the invention of claim 34 at the time of filing. *See* Final Act. 5. Similarly, we also agree with the Examiner that the Specification does not reasonably convey to an artisan of ordinary skill that the inventors had
possession of the inventions of claims 31–33, which have similar recitations, at the time of filing. *Id.*

Accordingly, we sustain the Examiner’s 35 U.S.C. § 112(a) rejection of claims 31–34.

We further note that Appellant does not provide persuasive evidence that the Specification reasonably conveys that the inventors had possession of the claim 34 recitation directed to *generating a reference signal for transmission on the physical uplink shared channel (PUSCH) using a user-specific parameter when a user-specific parameter is available.* Appellant identifies disclosures that generally relate to the user equipment configured to transmit data on a physical uplink shared channel. *See* Appeal Br. 10 (citing Spec. ¶¶ 7, 24); Reply Br. 3. These cited portions of the Specification do not disclose, however, transmission of a *reference signal* on the physical uplink shared channel. Rather, the Specification notes that in long-term evolution (LTE) communications, “the control channel and traffic channels are known as the Physical Uplink Control Channel (PUCCH) and Physical Uplink Shared Channel (PUSCH), respectively.” Spec. ¶ 7. The Specification further discloses separate resource blocks allotments for these control and traffic channels. *Id.* ¶ 24, Fig. 4. Moreover, although claim 5, as originally filed, features the step of “transmitting the reference signal on a physical uplink control channel (PUCCH),” none of the original claims feature a similar transmission on the physical uplink shared channel. Because the evidence of record does not reasonably convey that Appellants had possession of generating a reference signal for transmission on the physical uplink *shared* channel at the time the application was filed, the
inclusion of this additional recitation in claim 34 further supports the
Examiner’s 35 U.S.C. § 112(a) rejection of claim 34.

35 U.S.C. § 112(b)

The Examiner finds claim 1 is indefinite because it is unclear what is
meant by the cell-specific and user-specific parameter recitations “as the
Specification discloses a number of various parameters with no indication of
cell-specific and/or user specific.” Final Act. 6; see also Ans. 14.

Appellant contends the Examiner erred because the Specification
provides multiple embodiments that illustrate examples of cell-specific
and user-specific parameters. Appeal Br. 10–11 (citing Spec. ¶¶ 6, 20–21, 26–
28, 30–31, and Figs. 5–7); see also Reply Br. 4. Appellant argues that, in at
least some embodiments, notational clues such as the subscript “UE” for
user equipment “denote[] that the parameters are user specific.” Appeal Br.
11; Reply Br. 5.

We agree with Appellant the Examiner erred. Appellant cites to
multiple embodiments that each illustrate examples of cell-specific
parameters (e.g., “the serving cell’s common parameters of N^{(1)}_{PUCCH}
and N^{(2)}_{RB}”) and user-specific parameters (e.g., “dedicated PUCCH parameters
from N^{(1)}_{PUCCH,UE} and N^{(2)}_{RB,UE}”) with proper indications as to which
category a parameter belongs. Spec. ¶ 26 (emphases added). Thus, contrary
to the Examiner’s finding, the Specification provides indications of
parameters being cell-specific or user-specific. See Final Act. 6.

The Examiner’s findings, at best, show that the claimed cell- and
user-specific parameter recitations are broad. Breadth, however, is not the
same as indefiniteness. In re Miller, 441 F.2d 689, 693 (CCPA. 1971).
Accordingly, we do not sustain the Examiner’s 35 U.S.C. § 112(b) rejection of claim 1 and similarly rejected claims 2–12, 25–27, 29, 31, and 32. Final Act. 6.

Claims 21–24, 28, 33, and 34

The Examiner finds claim 21 is indefinite because “it is unclear what is meant by [SRS ID, niD] as such term is not defined.” Final Act. 7; see also Ans. 6. The Examiner similarly concludes the acronyms of claims 22–24, 28, 33, and 34 also render those claims indefinite. See Final Act. 7–8; Ans. 6–7.

Appellant contends the Examiner erred because the Specification defines the acronyms and the acronyms “were explicitly spelled out/defined in the Amendment dated” June 23, 2016, and entered by the Examiner April 6, 2017. Appeal Br. 13.

We agree with Appellant that the amended claims obviate the Examiner’s finding that the acronyms in claims 21–24, 28, 33, and 34 are not defined. See Final Act. 7–8; Ans. 6–7. Accordingly, we do not sustain the Examiner’s 35 U.S.C. § 112(b) rejections of these claims.

35 U.S.C. § 103

Claims 1, 4–6, 8–11, 21, 26, and 31–34

The Examiner finds that Bertrand’s selection of one base sequence index for a physical uplink control channel reference signal and another base sequence index for a sounding reference signal teaches or suggests selecting a first parameter in response to a first state of a signal or a second parameter in response to a second state of the signal. Final Act. 9 (citing Bertrand ¶¶ 45–48, Fig. 4). The Examiner finds Zhang’s transmission of a cell-specific or a user-equipment-specific sounding reference signal teaches
or suggests cell- and user-specific parameters. Final Act. 10 (citing Zhang ¶¶ 9, 66). The Examiner concludes it would have been obvious to modify Bertrand’s base sequence index selection to select between a cell- and user-specific parameter “in order to correctly and efficiently indicate and convey the proper parameters in generating . . . the correct reference signal.” Final Act. 10.

Appellant contends the Examiner erred because “one skilled in the art would never confuse a cell specific SRS and UE specific SRS as outlined in Zhang with the cell specific parameter and UE specific parameter taught in the present application. Appellant’s parameters are not the reference signals themselves.” Appeal Br. 17; see also Reply Br. 8. Appellant’s argument is unpersuasive, however, because the Examiner relies on Bertrand’s base sequence index selection to teach the selection of parameters. See Final Act. 9; Ans. 15. The Examiner properly relies on Zhang to suggest that one of the selectable parameters can be cell-specific and another selectable parameter can be user-specific. See Final Act. 10; Ans. 15. Appellant’s argument unpersuasively attacks Zhang individually rather than showing error in the Examiner’s reliance on the combined teachings and suggestions of Bertrand and Zhang. See Appeal Br. 17–19; Reply Br. 8–9. Moreover, Appellant’s conclusory contention that the Examiner relied on impermissible hindsight reasoning is not supported by persuasive arguments or evidence. See Appeal Br. 19; Reply Br. 10.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 1, and claims 4–6, 8–11, 21, 26, and 31–34, which Appellant does not argue separately with specificity. See Appeal Br. 20–21, 23–24.
Claim 2

The Examiner finds that Bertrand’s implicit derivation of an index \( u \) by user equipment from other broadcast parameters such as a cell identifier teaches or suggests \textit{wherein the user-specific parameter is a virtual cell identification parameter}. Ans. 16 (citing Bertrand ¶ 46); see also Final Act. 10. Appellant contends the Examiner erred because “whether broadcast or derived, the index \( u \) is referencing the actual index \( u \), not a ‘virtual’ index \( u \). Examiner confuses the words ‘implicit’ and ‘virtual.’” Reply Br. 12.

Appellant’s argument is unpersuasive because the claim recitation is directed to a user-specific parameter that is “a virtual cell identification parameter” (emphasis added) rather than a virtual index. Appellant contends “Bertrand does not teach or suggest that its ‘implicit’ cell identifier is a ‘virtual’ cell identifier.” \textit{Id.} Appellant does not, however, provide persuasive arguments or evidence that distinguish the claimed \textit{virtual cell identification parameter} from Bertrand’s index being derived from a cell identifier (thus existing in effect or essence as a cell identifier without being a cell identifier in actual fact, form, or name). Appellant merely quotes dictionary definitions of “implicit” and “virtual” without explanation as to how they demonstrate Bertrand’s implicitly derived index teachings fail to teach or suggest the claimed \textit{virtual cell identification parameter} given a reasonably broad interpretation of the disputed recitation. \textit{Id.} (quoting Webster’s II New Riverside Dictionary (1988)).

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 2.
Claim 7

The Examiner finds Bertrand’s control information bits, including an indicator of downlink channel quality (CQI) and at least one bit indicating a successful or failed circular redundancy check (CRC) as part of a Downlink Hybrid Automatic Repeat ReQuest (HARQ), teach or suggest configuring a user equipment with dedicated user-specific uplink control resource allocation parameters for determining an uplink control region for transmitting channel state information reports and determining the uplink control region for transmitting scheduling requests and Hybrid Auto Repeat Request (HARQ) acknowledgement reports. Final Act. 11 (citing Bertrand ¶ 5); see also Ans. 16 (further citing Bertrand ¶ 54).

Appellant contends the Examiner erred because Bertrand “fails to teach or suggest, ‘configuring a user equipment with dedicated user-specific uplink control resource allocation parameters for determining an uplink control region for transmitting channel state information reports’ and ‘determining the uplink control region for transmitting scheduling requests and Hybrid Auto Repeat Request (HARQ) acknowledgement reports.’” Appeal Br. 22; see also Reply Br. 13.

Appellant fails to provide persuasive arguments or evidence distinguishing: (1) the claimed uplink control region from Bertrand’s control information bits; (2) the claimed channel state information reports from Bertrand’s indicator of downlink channel quality; and (3) the claimed Hybrid Auto Repeat Request (HARQ) acknowledgement reports from Bertrand’s Downlink Hybrid Automatic Repeat ReQuest indication of a successful or failed circular redundancy check in the form of an
acknowledgment (ACK) or negative acknowledgment (NACK) bit. See Bertrand ¶ 5.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 7.

Claim 12

The Examiner finds that Bertrand’s multiplexing of a user equipment’s sounding reference signal (SRS) in time, frequency, and cyclic shifts with other user equipment sounding reference signals teaches or suggests wherein said SRS resource allocation parameters include one or more of SRS bandwidth configuration, SRS subframe configuration, an indication of whether simultaneous transmission of Hybrid Auto Repeat Request acknowledgement and SRS is permitted within a subframe, and a number of resources allocated for transmitting random access preambles. Ans. 17 (citing, e.g., Bertrand ¶ 40); see also Final Act. 12. Because the disputed recitation is directed to sounding reference signal resource allocation parameters that “include one or more” of a number of parameters, the Examiner’s findings need only show that the prior art teaches or suggests one of the recited parameters.

Appellant contends the Examiner erred because the portions of Bertrand cited by the Examiner fail to teach or suggest any of the recited sounding reference signal resource allocation parameters. See Reply Br. 15–16; see also Appeal Br. 23–24. Appellant’s conclusory assertion does not, however, distinguish SRS bandwidth configuration from the multiplexing of a sounding reference signal “in time, frequency and cyclic shifts” within a cell. Bertrand ¶ 40. In particular, such multiplexing entails configuring the bandwidth to be used for the user equipment’s sounding reference signal.
Therefore, we agree with the Examiner that Bertrand teaches or suggests at least one of the recited parameters.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 12.

Claims 22–24

The Examiner finds that Bertrand’s use of a base sequence group index \( u \) provided to user equipment within a given cell to indicate which base sequences the user equipment to use for forming physical uplink control channel reference signals teaches or suggests \( \text{wherein physical uplink control channel (PUCCH) ID, } n_{ID} \text{ is the second state of the signal.} \)

Final Act. 12–13 (citing Bertrand ¶¶ 45–48, Fig. 4); Ans. 17.

Appellant contends the Examiner erred because there is no teaching in the cited portions of Bertrand of “\( \text{wherein physical uplink control channel (PUCCH) ID, } n_{ID} \text{ is the second state of the signal.} \)” Appeal Br. 25; see also Reply Br. 16–18. Appellant’s arguments do not, however, persuasively distinguish the claimed physical uplink control channel ID, \( n_{ID} \), from Bertrand’s base sequence group index \( u \). See Bertrand ¶ 46. Rather, Appellant contends that the Examiner’s use of the word “correlates” shows that the Examiner is not rejecting claim 22 based on what Bertrand teaches or suggests, but is instead relying on what the “Examiner ‘interprets’ the reference to teach.” Reply Br. 8.

Appellant’s argument unpersuasively elevates form above substance. The Examiner plainly uses the word “correlates” to convey that the Examiner finds Bertrand teaches or suggests the disputed recitation. See Ans. 17. The Examiner use “correlates” in a similar manner in presenting findings supporting the 35 U.S.C. § 103 rejection of claims 1, 2, 7, and 25.
See id. at 15–16, 18. Appellant does not rely on the Examiner’s word choice as evidence of error with respect to the obviousness rejection of these other claims. See Reply Br. 7–13, 18–21. Because the Examiner merely uses the word “correlates” to identify what the Examiner finds the prior art teaches or suggests, Appellant’s argument does not show error in the Examiner’s findings.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 22, and claims 23 and 24, which Appellant does not argue separately. Appeal Br. 25.

**Claims 25 and 27**

The Examiner finds that Zhang’s use of a dedicated control channel by user terminals having a radio resource control connection teaches or suggests wherein said signal from a base station is a Radio Resource Control (RRC) signal. Final Act. 13 (citing Zhang ¶ 54); see also Ans. 17–18 (further citing Bertrand ¶¶ 46–48). Appellant contends the Examiner erred because there is nothing in the cited prior art “that conveys that the signal conveying either of the parameters is an RRC signal. As a result, Examiner’s determination is supposition not supported by fact which is little more than improper hindsight reconstruction which must be reversed.” Appeal Br. 26; see also Reply Br. 21.

Appellant’s arguments unpersuasively fail to show error in the Examiner’s finding that Zhang’s transmission of dedicated control information using a radio resource control connection teaches or suggests using such a connection to transmit the control information found in Bertrand (e.g., a base sequence group index u). See Ans. 17 (citing Bertrand ¶¶ 46–48; Zhang ¶ 54). Appellant merely asserts the cited teachings of
“Bertrand do not overcome the previously identified deficiency in Examiner’s reliance on paragraph [0054] of Zhang.” Reply Br. 20. Appellant fails, however, to show error in the Examiner’s reliance on the combined teachings and suggestions of Bertrand and Zhang. Nor does Appellant provide persuasive arguments or evidence showing the Examiner relied on improper hindsight reasoning.

Accordingly, we sustain the Examiner’s 35 U.S.C. § 103 rejection of claim 25, and similarly argued claim 27. See Appeal Br. 26–27.
We do not sustain the Examiner’s decision rejecting claims 1–12 and 21–29 under 35 U.S.C. § 112(a).

We sustain the Examiner’s decision rejecting claims 31–34 under 35 U.S.C. § 112(a).

We do not sustain the Examiner’s decision rejecting claims 1–12, 21–29, and 31–34 under 35 U.S.C. § 112(b).

We sustain the Examiner’s decision rejecting claims 1, 2, 4–12, 21–27, and 31–34 under 35 U.S.C. § 103.

We affirm the Examiner’s decision rejecting claims 1, 2, 4–12, 21–27, and 31–34 because we sustain at least one rejection of each of these claims.

We reverse the Examiner’s decision rejecting claims 3, 28, and 29 because we do not sustain any rejections of these claims.

We do not address the Examiner’s objection to the drawings.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART