



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/782,353	10/05/2015	Chandrika K. Worrall	LUTZ 202069US01	9402
48116	7590	09/10/2020	EXAMINER	
FAY SHARPE/NOKIA 1228 Euclid Avenue, 5th Floor The Halle Building Cleveland, OH 44115-1843			HARLEY, JASON A	
			ART UNIT	PAPER NUMBER
			2468	
			NOTIFICATION DATE	DELIVERY MODE
			09/10/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@faysharpe.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHANDRIKA K. WORRALL

Appeal 2019-003220
Application 14/782,353
Technology Center 2400

Before BRADLEY W. BAUMEISTER, JAMES B. ARPIN, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

ARPIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ appeals under 35 U.S.C. § 134(a) the Examiner's decision rejecting claims 1, 6, and 8–19. Final Act. 1.² Claims 2–5 and 7 are canceled. Appeal Br. 14–15 (Claims App.). We have jurisdiction under

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party-in-interest as Alcatel Lucent. Appeal Br. 1.

² In this Decision, we refer to Appellant's Appeal Brief (“Appeal Br.,” filed November 6, 2018) and Reply Brief (“Reply Br.,” filed March 15, 2019); the Final Office Action (“Final Act.,” mailed July 20, 2018) and the Examiner's Answer (“Ans.,” mailed February 21, 2019); and the Specification (“Spec.,” filed October 5, 2015). Rather than repeat the Examiner's findings and determinations and Appellant's contentions in their entirety, we refer to these documents.

35 U.S.C. § 6(b).

We affirm-in-part.

STATEMENT OF THE CASE

The recited methods, user equipment, and base stations “relate[] to a method of transmitting an indication of user equipment uplink buffer status in a wireless communications network in which user equipment is configured to communicate with one or more base stations using dual connectivity techniques.” Spec., 1:4–8.

As noted above, claims 1, 6, and 8–19 are pending. Claims 1, 10, 11, and 14 are independent. Appeal Br. 14 (claim 1), 15 (claim 10), 16 (claim 11), 16–17 (claim 14) (Claims App.).

Claim 1 recites, “[a] method of *transmitting* an indication of user equipment uplink buffer status in a wireless communications network in which said user equipment is configured to communicate with more than one base station at a given time using dual connectivity techniques in which a scheduler is provided at each serving base station.” *Id.* at 14 (emphasis added). Claim 11 similarly recites “[a] method of *receiving* an indication of user equipment uplink buffer status.” *Id.* at 16 (emphasis added). Claim 10 recites “[u]ser equipment configured *to transmit* an indication of user equipment uplink buffer status in a wireless communications network in which said user equipment is configured to communicate with more than one base station at a given time using dual connectivity techniques in which a scheduler is provided at each serving base station.” *Id.* at 15 (emphasis added). Claim 14 similarly recites, “[a] base station configured *to receive* an indication of user equipment uplink buffer status in a wireless communications network in which said user equipment is configured to

communicate with more than one base station at a given time using dual connectivity techniques in which a scheduler is provided at each serving base station.” *Id.* at 16–17 (emphasis added). Claims 6, 8, 9, 15, and 19 depend directly from claim 1; claims 16–18 depend directly or indirectly from claim 10; and claims 12 and 13 depend directly from claim 11. *Id.* at 14–18.

Claims 1 and 19 are reproduced below with disputed limitations emphasized; claim 1 is illustrative.

1. A method of transmitting an indication of user equipment uplink buffer status in a wireless communications network in which said user equipment is configured to communicate with more than one base station at a given time using dual connectivity techniques in which a scheduler is provided at each serving base station, said method comprising:

receiving an indication of a dual connectivity configuration to be used by said user equipment for uplink transmission; and

structuring an uplink buffer status reporting in which uplink buffer status is grouped for one or more schedulers to be used for said user equipment according to said received indication of a dual connectivity configuration;

wherein structuring said uplink buffer status reporting comprises constructing an independent uplink buffer status report for each scheduler to be used for said user equipment;

wherein the method further comprises transmitting said independent uplink buffer status reports to one or more of said base stations using resources granted by said more than one base station; and

wherein the resource used to transmit each said independent uplink buffer status report implicitly indicates which scheduler each said independent uplink buffer status report is intended for.

Id. at 14 (emphasis added).

19. The method according to claim 1, wherein *the buffer status report is formatted according to a cell order*.

Id. at 18 (emphasis added)

REFERENCES AND REJECTIONS

The Examiner relies upon the following references:

Name³	Reference	Publ'd	Filed
Heo	US 2011/0268045 A1	Nov. 3, 2011	Apr. 30, 2010
Stern-Berkowitz	US 2013/0176953 A1	July 11, 2013	Aug. 10, 2012
Qu	US 2014/0029584 A1	Jan. 30, 2014	July 26, 2013
Kuo	US 2014/0293896 A1	Oct. 2, 2014	Mar. 25, 2014

The Examiner rejects claims 1, 6, 8–14, 16, and 19 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo and Stern-Berkowitz. Final Act. 4–14. The Examiner also rejects claim 15 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Qu (*id.* at 14–15) and claims 17 and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Heo (*id.* at 16–17).

We review the appealed rejections for error based upon the issues identified by Appellant, and in light of the contentions and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential). The Examiner and Appellant focus their findings and contentions on claims 1 and 19; so do we. *See, e.g.*, Appeal Br. 10–11. Arguments not made are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). Unless otherwise indicated, we adopt the Examiner's findings in the Final Office

³ All reference citations are to the first named inventor only.

Action and the Answer as our own and add any additional findings of fact for emphasis. We address the rejections below.⁴

ANALYSIS

A. Obviousness Over Kuo and Stern-Berkowitz

1. Claim 1

As noted above, the Examiner rejects claim 1 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo and Stern-Berkowitz. Final Act. 4–7. In particular, the Examiner finds that Kuo teaches or suggests the majority of the limitations of independent claim 1. *Id.* at 4–6. The Examiner finds, however, that Kuo does not teach or suggest “the resource used to transmit each said independent uplink buffer status report implicitly indicates which scheduler each said independent uplink buffer status report is intended for.” *Id.* at 6. Nevertheless, the Examiner finds that Stern-Berkowitz teaches or suggests this limitation and that a person of ordinary skill in the relevant art would have had reason to combine Kuo’s teachings with those of Stern-Berkowitz to achieve the method recited in claim 1. *Id.* at 6–7 (citing Stern-Berkowitz ¶¶ 122, 130).

⁴ The Examiner interprets certain limitations of claims 10 and 14 as means-plus-function limitations under 35 U.S.C. § 112(f). Final Act. 2–3; Ans. 7–8. Although Appellant disagrees with this interpretation (Appeal Br. 11–12; Reply Br. 8), the only rejection that Appellant substantively challenges relates to claims 1 and 19, which do not recite these limitations, and Appellant does not contend that the interpretation of these limitations is relevant to its challenges to the obviousness rejection of claim 1 or 19. Therefore, we do not address the interpretation of those limitations in this appeal.

In particular, Stern-Berkowitz discloses:

In certain scenarios, for example as depicted in FIG. 7, a [wireless transmit/receive unit (WTRU)] 702 may transmit a [Physical Uplink Control Channel (PUCCH)] or [Physical Uplink Shared Channel (PUSCH)] on one set of [Uplink (UL)] resources intended for reception by, or which may be received by, multiple [evolved node-Bs (eNBs)] or schedulers. [Timing advance (TA)] needed for reception, or the TA that would be determined, by one eNB or scheduler may be different from that for a different eNB or scheduler, yet only one timing advance value may be physically applied to the one transmission. The present disclosure provides systems and methods for the WTRU to determine how much TA to apply to an UL transmission intended for reception by, or which may be received by, multiple eNBs, cells of multiple eNBs or multiple schedulers, to satisfy the UL timing requirements of the multiple eNBs, the cells of multiple eNBs, or the multiple schedulers.

Stern-Berkowitz ¶ 122 (emphasis added); *see id.* ¶¶ 82 (“eNB as used in this disclosure, may mean, may include, or may be replaced by a scheduler, such as an independent scheduler, or multiple schedulers and still be consistent with this disclosure.”), 83 (“Further, eNB as used in this disclosure may mean, may include, or may be replaced by a cell, a set of cells, multiple sets of cells, a site, a beam, or a set of beams and still be consistent with this disclosure.”). Further, Stern-Berkowitz discloses:

The scenario may be that the WTRU may transmit PUCCH or PUSCH on the resources of a specific cell and that PUCCH or PUSCH may be intended for reception by, or may be received by, one or more eNBs, cells, or schedulers, for example, as depicted in FIG 7, which may include that cell or the eNB managing it and one or more other eNBs or schedulers.

Id. ¶ 130 (emphasis added). Thus, the Examiner finds Stern-Berkowitz teaches or suggests that a UL resource transmits the independent uplink buffer status report (BSR), as is taught by Kuo, and implicitly indicates, such

as by the transmission channel, for which scheduler the uplink BSR is intended. Final Act. 7; *see* Ans. 5–6.

Appellant contends the Examiner errs for two reasons. For the reasons given below, we are not persuaded by either of Appellant’s reasons.

First, Appellant contends that, unlike the claimed methods, Stern-Berkowitz seeks “to solv[e] the particular problem of the situation of when a WTRU would exceed its maximum configured output power.” Appeal Br. 8–9 (citing Stern-Berkowitz ¶ 120). Thus, Appellant contends “including a ‘unique identifier’ in a [power headroom report (PHR)] (as in Stern[-Berkowitz]) does not fairly suggest that the resource used to transmit each independent uplink buffer status report implicitly indicates *which scheduler each said independent uplink buffer status report is intended for* (as in claim 1).” *Id.* at 9 (emphasis added). Appellant asserts that including a “unique identifier” in a PHR does not teach or suggest, “the resource used to transmit each said independent uplink buffer status report implicitly indicates which scheduler each said independent uplink buffer status report is intended for.” Reply Br. 4–5.

Initially, the Examiner finds, “[i]n regards to the claim limitation[,] the term ‘implicit indication’ is not well define[d] in the applicant’s claim and therefore is considered implicit indication.” Ans. 4. The Specification explains, “an indication of serving cell identity is explicitly or implicitly included in a [Media Access Control Control Elements (MAC CE)].” Spec., 5:8–9. In particular, the Specification explains,

An indication of the identity of the intended scheduler (cell) is also included in the buffer status report MAC CE as a cell ID index. In an alternative embodiment, an indication of a cell ID is implicitly indicated via the [logic channel identification

(LCID)] included in the [Media Access Control Protocol Data Unit (MAC PDU)] sub-header. Such embodiments require transmission of a buffer status report MAC CE per serving cell.

Id. at 4:32–35. Thus, the scheduler may be *expressly* identified in the BSR of MAC CE or it can be *implicitly* identified by its LCID in the MAC PDU sub-header.

As noted above, the Examiner finds Kuo teaches or suggests, “transmitting said independent uplink buffer status reports to one or more of said base stations using resources granted by said more than one base station.” Final Act. 5–6 (citing Kuo ¶¶ 46, 47, 164). Thus, the Examiner relies on Kuo, not Stern-Berkowitz, to teach or suggest the uplinking BSRs by UL resources. Further, Kuo discloses the use of LCIDs of MAC CE to direct BSRs. Kuo ¶¶ 91, 92; *see id.* ¶ 152.

The Examiner finds:

In Stern[-Berkowitz] paragraphs 0370, 0377, 0380, “The WTRU may report include in a PHR at least one of an indication of the applicable eNB, scheduler, or configured set of cells, for each CC or cell or each group of [component carriers (CCs)] or cells or for the report itself. The WTRU may know which CCs or cells are assigned to a given eNB or scheduler by a configured set of CCs or cells that correspond to a particular eNB or scheduler.[”]

Ans. 5. Further, Stern-Berkowitz explains, “[t]his indication *may be* a unique identifier associated with the particular set of configured CCs or cells.” Stern-Berkowitz ¶ 371 (emphasis added); *see* Appeal Br. 9.

As Stern-Berkowitz explains, however, TA commands and PHRs may be signaled *via MAC CE*. Stern-Berkowitz ¶¶ 100, 101, 385. Similar to a BSR, TA commands may take into account transmission delays. Final Act. 17–18; *see* Stern-Berkowitz ¶¶ 99–100.

Further, Stern-Berkowitz explains:

An eNB may signal, and a WTRU may receive, separate TA commands for PUCCH, in addition to other TA commands, which may still apply to PUSCH and [Sounding Reference Signal (SRS)]. *This may be done by using the R field in the MAC CE to indicate a PUCCH TA command, or by using a unique LCID to identify a separately signaled PUCCH TA command.*

Id. ¶ 357; *see id.* ¶ 356.

A person of ordinary skill in the relevant art would have understood that a MAC CE may contain both a BSR and a PHR and, as described in Stern-Berkowitz, may use an LCID to indicate *implicitly* the scheduler, for which the buffer status report is intended. *See* Heo ¶ 22 (“For example, Rel-8 MAC control elements may include a Cell Radio Network Temporary Identifier (C-RNTI) MAC CE, a Buffer Status Report (BSR) MAC CE, and a Power Headroom Report (PHR) MAC CE.” (emphases added)).⁵ Consequently, we are not persuaded the Examiner errs in finding Kuo and Stern-Berkowitz teach or suggest the resource transmits the buffer status report with an implicit indication of the scheduler. Ans. 5 (“The office action shows that the prior art Kuo shows a Buffer Status Report in paragraph 0142. Stern is brought in to show the resource used to transmit each buffer status report.”); *see* Final Act. 7.

Second, Appellant contends Stern-Berkowitz does not teach or suggest, “the resources themselves would be used as an indication of a

⁵ The cited prior art is representative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error ‘where the prior art itself reflects an appropriate level and a need for testimony is not shown’”; quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

specific scheduler that the transmission is intended for.” Appeal Br. 9–10. This argument is unpersuasive because Stern-Berkowitz teaches or suggests that the UL resource may identify the scheduler for which the transmission is intended by other means.

For example,

As another example, the report may indicate, possibly with a bit, whether or not the power was based on the power needed for the cell on which the PUCCH was transmitted or for another eNB. For example, if the PUCCH is transmitted on the resources of the PCell, there may be an indication, possibly a bit, indicating whether the power was driven by the requirements for the PCell or the requirements to reach another eNB. *The WTRU may report, possibly as part of the PHR, for which eNBs or cells the PUCCH was intended when computing the PH.*

Stern-Berkowitz ¶ 383; *see id.* ¶¶ 382, 384 (describing other indications).

Consequently, we are not persuaded the Examiner errs in finding Stern-Berkowitz teaches that the resource itself, e.g., the WTRU, transmits an implicit identification of the intended scheduler. Final Act. 7. To the extent Appellant is arguing that the scheduler must be indicated by the identity of the resource itself, rather than by data transmitted by the resource, the Specification indicates that the claims should not be construed so narrowly. Spec. 4:32–35 (“An indication of the identity of the intended scheduler (cell) . . . is implicitly indicated via the LCID included in the MAC PDU sub-header”).

We are not persuaded the Examiner errs in finding that claim 1, as well as claims 10, 11, and 14, are obvious over the combined teachings of Kuo and Stern-Berkowitz. *See* Appeal Br. 10. Further, with the exception of claim 19, Appellant does not challenge the rejection of the dependent claims separately, and, on this record, we are not persuaded the Examiner

errs in finding that claims 6, 8, 9, 12, 13, and 16 are obvious over the combined teachings of Kuo and Stern-Berkowitz. *See id.* Consequently, we sustain the obviousness rejection of claims 1, 6, 8–14, and 16.

2. Claim 19

As noted above, the Examiner also rejects claim 19 under 35 U.S.C. § 103(a) as obvious over the combined teachings of Kuo and Stern-Berkowitz. Final Act. 14. Claim 19 recites, in the method of claim 1, “the buffer status report is formatted according to a cell order.” Appeal Br. 18 (Claims App.). The Examiner acknowledges that Kuo does not teach or suggest this limitation, but finds Stern-Berkowitz teaches or suggests this limitation and a person of ordinary skill in the art would have had reason to combine the teachings of Kuo with those of Stern-Berkowitz to achieve the method as recited in claim 19. Final Act. 14 (citing Stern-Berkowitz ¶¶ 79, 80).

In particular, Stern-Berkowitz discloses “a WTRU may be configured such that it is aware of which cells, serving cells, or CCs belong to a certain eNB or scheduler.” Stern-Berkowitz ¶ 80. Thus, the Examiner finds that Kuo and Stern-Berkowitz teach or suggest a WTRU “may establish communication with a *first* set of cells and a *second* set of cells.” Final Act. 14 (emphasis added). In the Answer, the Examiner further finds that Kuo teaches a long and a short BSR format and that these formats can be associated with various logic channel group identifications (LCG IDs). Ans. 6 (citing Kuo ¶¶ 89–93). From this, the Examiner finds that the references teach or suggest formatting a BSR “according to a cell order.”

Appellant disagrees and contends that being “aware of which cells, serving cells of CCs belong to a certain eNB or scheduler” does not teach or

suggest, “the buffer status report is formatted *according to a cell order.*” Appeal Br. 11 (emphasis added). We are not persuaded that the Examiner shows a causal link between the report format and the cell order, as recited in claim 19. *See Spec.*, 5:4–12. Although Kuo teaches that different BSR formats can be applied to different LCGs, this does not teach or suggest formatting the BSR “according to the cell order.” Reply Br. 7–8.

We are persuaded the Examiner errs in finding that the claim 19 is obvious over the combined teachings of Kuo and Stern-Berkowitz. Consequently, we do not sustain the obviousness rejection of claim 19.

B. Obviousness Over Kuo and Stern-Berkowitz With Qu or Heo

As noted above, the Examiner also rejects claim 15 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Qu (Final Act. 14–15) and claim 17 and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Heo (*id.* at 16–17). Appellant does not argue these dependent claims separately, and, instead, relies solely on its challenges to the rejection of their base claims, claims 1 and 10, to show Examiner error in these rejections. *See Appeal Br. 10.* On this record and for the reasons give above, we are not persuaded the Examiner errs in finding that claims 1 and 10 are obvious over the combined teachings of Kuo and Stern-Berkowitz. Consequently, we are not persuaded that the Examiner errs in rejecting claims 15, 17, and 18, and we sustain the obviousness rejections thereof.

DECISION

1. The Examiner does not err in rejecting:

- a. claims 1, 6, 8–14, and 16 under 35 U.S.C. § 103, as obvious over the combined teachings of Kuo and Stern-Berkowitz;
 - b. claim 15 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Qu; and
 - c. claims 17 and 18 under 35 U.S.C. § 103 as obvious over the combined teachings of Kuo, Stern-Berkowitz, and Heo.
2. The Examiner errs in rejecting claim 19 under 35 U.S.C. § 103, as obvious over the combined teachings of Kuo and Stern-Berkowitz.
 3. Thus, on this record, claims 1, 6, and 8–18 are not patentable, but claim 19 is not unpatentable.

CONCLUSION

We affirm the Examiner’s rejection of claims 1, 6, and 8–18, but reverse the Examiner’s rejection of claim 19.

In summary:

Claims Rejected	35 U.S.C. §	Basis/Reference(s)	Affirmed	Reversed
1, 6, 8–14, 16, 19	103	Kuo, Stern-Berkowitz	1, 6, 8–14, 16	19
15	103	Kuo, Stern-Berkowitz, Qu	15	
17, 18	103	Kuo, Stern-Berkowitz, Heo	17, 18	
Overall Outcome			1, 6, 8–18	19

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. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART