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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TAO YANG and SEAU SIAN LIM

Appeal 2019-004866
Application 14/345,866
Technology Center 2600

Before JAMES P. CALVE, MICHAEL J. FITZPATRICK, and LISA M. GUIJT, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the decision of the Examiner to reject claims 8, 10, 11, 17, and 19. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

[1] "Appellant" refers to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies Alcatel Lucent as the real party in interest (Appeal Br. 1) and as being a wholly owned subsidiary of Nokia Oy (Reply Br. 2).

CLAIMED SUBJECT MATTER

Appellant's claimed invention "relates to carrier aggregation-based wireless communication and particularly to a method of configuring a timing advance group and/or a value of a time alignment timer." Spec. 1:5–7.

> 8. A base station, comprising:
> at least one processor; and
> at least one memory including computer program code;
> the at least one memory and the computer program code configured to, with the at least one processor, cause the base station at least to perform:
> transmitting the value of the time alignment timer toward a user equipment via a radio resource control message;
> determining whether a secondary cell is a first secondary cell for which the base station configures a timing advance group or the secondary cell is added to an existing timing advance group;
> if the secondary cell is determined to be the first secondary cell for which the base station configures the timing advance group, configuring the value of the time alignment timer for the secondary cell; and
> if the secondary cell is determined to be added to an existing timing advance group, reconfiguring an existing time alignment timer value of a secondary cell belonging to the timing advance group with a time alignment timer value already configured for the timing advance group.

REJECTIONS

Claims 8, 10, 11, and 19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Jiang (US 2012/0282969 A1, pub. Nov. 8, 2012) and Jang (US 2012/0257570 A1, pub. Oct. 11, 2012).

Claim 17 is rejected under 35 U.S.C. § 103(a) as unpatentable over Park (US 2010/0284376 A1, pub. Nov. 11, 2010) and Boström (US 2012/0281680 A1, pub. Nov. 8, 2012).

ANALYSIS

Claims 8, 10, 11, and 19 Rejected Over Jiang and Jang

Claims 8, 11, and 19

Appellant argues claims 8, 11, and 19 as a group. Appeal Br. 5–9. We select claim 8 as representative and address Appellant's arguments for dependent claim 10 separately. 37 C.F.R. § 41.37(c)(1)(iv). For claim 8, the Examiner cites Jiang to teach a base station (eNodeB 12, Fig. 12) used to determine whether a secondary cell is a first secondary cell for which the base station configures a timing advance group (TAG), or the secondary cell is added to an existing TAG. Final Act. 5 (citing, *e.g.*, Jiang ¶ 84, Fig. 6). The Examiner finds that Jiang configures an identifier for the secondary cell if it is the first secondary cell for which the base station configures a TAG, or the base station reconfigures existing parameters of a secondary cell with parameters for the existing TAG if the secondary cell is added to an existing TAG, e.g., because it matches the timing advance of that TAG. *Id.* at 5–6.

The Examiner cites Jang to teach a processor, memory, and computer program code used in a base station to transmit a time alignment time (TAT) value and TAG configuration to user equipment via a radio resource control message if its secondary cell is added as a new TAG, and to reconfigure an existing TAT value of a UE's secondary cell with the TAT value of an existing TAG if the secondary cell is added to the existing TAG. *Id.* at 6–7.

The Examiner determines that it would have been obvious to a skilled artisan to modify Jiang to manage and operate time alignment timers (TATs) of its timing advance groups (TAGs) to manage uplink timings efficiently and comply with industry standard LTE, as Jang teaches, including the RRC protocols as Jiang teaches. *Id.* at 7 (citing Jiang ¶ 5 and Jang ¶ 3).

> Appellant argues that Jiang does not teach the following limitation:
>
> if the secondary cell is determined to be added to an existing timing advance group, reconfiguring an existing time alignment timer value of a secondary cell belonging to the timing advance group with a time alignment timer value already configured for the timing advance group.

Appeal Br. 5[2]; Reply Br. 2–3. This argument is not persuasive because the Examiner combines the teachings of Jiang and Jang to establish obviousness. *See In re Merck*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.").

Jiang teaches a base station that determines if a secondary cell should be configured as a new TAG or reconfigured and added to an existing TAG of a base station. Final Act. 2, 5–6. Jang teaches how a timing alignment timer is configured/reconfigured in both of Jiang's two scenarios. *Id.* at 6–7.

Appellant also argues that Jang does not cure Jiang's alleged defect. Appeal Br. 5. In particular, Appellant argues that Jang's teachings to set a time alignment timer (TAT) of the respective TAGs to the same or different values does not teach the claimed *reconfiguration* of an existing TAT value with a TAT value already configured for the TAG. *Id.* at 6; Reply Br. 3–4.

Appellant acknowledges that Jiang *reconfigures* a secondary cell of user equipment (UE), i.e., component carrier (CC), when it adds a CC to an existing TA group by sending a TA group identifier (*TAG ID*) to the UE as an attribute parameter in an RRC reconfiguration message. Reply Br. 2–3 (citing Jiang ¶ 60); *see* Final Act. 6 (citing Jiang ¶ 60). The Examiner finds that Jiang does not address how the *TAT value* is reconfigured. Final Act. 6.

[2] Appellant cites a similar limitation in claim 19. *See* Appeal Br. 5.

The Examiner cites Jang to teach this feature. Jang teaches that a base station transmits a *TAT value* to a particular UE *based on the TAG* of that certain UE in an RCC message, and the UE receives the TAT value for that respective TAG from the base station (eNB). Jang ¶¶ 92, 125; Final Act. 6–7 (citing *id.*). "[T]he UE receives an RRC message carrying the carrier configuration for aggregation, *TAG configuration*, and *TAT values* of the respective TAGs from the eNB at step 703." Jang ¶ 92 (emphasis added).

Because Jang teaches that the base station (eNB) configures carrier aggregation for the UE with TAG information of secondary cells (SCells) to be aggregated and the TAT value for each TAG through RRC layer message 603, the Examiner reasons correctly that a skilled artisan would understand that a base station assigns a TAT value to a UE that is added to an existing TAG with the TAG configuration. Jang ¶¶ 46–53, 92; *see* Ans. 6–7. Jang thus configures all UEs in a TAG with the same TAT value.

Jiang teaches that base stations add new UEs to an existing TA group (TAG) by configuring the newly-added UE with the *TAG ID* of the existing TA group via an RRC message. Jiang ¶¶ 39, 60, 85. Jang adds a UE to an existing TA group by configuring the UE with the *TAG configuration*, which includes the *TAG ID* and timing advance (TA) of that TAG as Jiang teaches, *and* Jang also teaches to include the *TAT value* of that TAG for the newly-added UE. The eNB sends this data. Jang ¶¶ 58, 59, 92; Final Act. 7.

Skilled artisans would understand these teachings to mean that adding UEs to TAGs would reconfigure/replace their current TAT value, e.g., from a previous TAG, with the TAT value of the TAG to which they are added as recited in claim 8. *See* Spec. 10 (when a UE is added to a TAG, its existing TAT value is replaced with the TAT value of the TAG to which it is added).

Finite options exist for configuring the TAG ID and TAT value of a UE that is added to a TAG by a base station. If the UE previously belonged to another TAG, then its TAG ID and TAT value from the previous TAG are *reconfigured* with a TAG ID and TAT value of the TAG to which it is added by a base station. Jiang ¶¶ 34–39, 45, 46, 59, 60, Fig. 2; Jang ¶¶ 92, 93.

The teachings of Jiang and Jang are clear on this point. LTE protocol assigns TAG IDs and TAT values to a UE when it is added to a TAG. When the eNB transmits TA information in TAC MAC CE or RAR messages for a UE's initial access, the UE starts a TAT when TA information is received to verify the validity of the TA (timing advance). Jang ¶¶ 47, 48, 54, 97.

If a UE does not match up with an existing TAG, then Jiang and Jang make clear that the UE is given its own TAG ID and TAT value instead of a TAG ID and TAT value of an existing TAG. Jiang ¶¶ 39 ("otherwise, a new TA group identifier is allocated for the added CC" if a UE carrier CC does not belong to a CC band already configured by ENodeB); 59 (if TAs of CCs fall outside the range of TAs of existing TA Groups, "it is considered that these CCs do not belong to a TA group"), 128 (dNodeB "reallocates a new TA group"); Jang ¶ 125 (carrier aggregation processor 1211 configures the carrier aggregation and TAT value per the TAG of *a certain UE*).

A UE starts a TAT when TA information is received to verify the TA information's validity. Jang ¶¶ 48, 54. Thus, configuring a UE with a TAG ID requires its TAT value to be reconfigured for the TA information that is received, whether the UE receives an existing TAG ID or a new TAG ID.

The Examiner correctly finds that the Specification does not define "reconfiguring" an existing TAT value and reasons that "reconfiguring" can include any change in a configuration value, e.g., a TAT value. Ans. 4.

The Specification describes that "another issue is how to reconfigure a TAT value of the *TA group*." Spec. 10 (emphasis added). The Specification continues that "a TAT shall be started or restarted when a user equipment receives a TA or a TAC." *Id.* Jang teaches such a reconfiguration of a TAT value as "[i]f the TA information is received, the UE *starts* a time alignment timer (timeAlignmentTimer or TAT)." Jang ¶ 48 ("The TAT is a timer for verifying the validity of the TA."). Jang's description of the TAT operation also corresponds to the Specification's description that "a TAT value shall be preconfigured before the user equipment obtains the TA." Spec. 10.

Jang thus "reconfigur[es] an existing time alignment timer value" as claimed by changing TAT values of UEs moving among TAGs. Jang ¶¶ 49 (TAT restarts), 54 (start a TAT for the TAG), 58 (TAT value per TAG), 59 (TATs of respective TAG set to same or different values). Because UE's receive new TAT values as they move among TA groups, reconfigured TAT values are suggested as well, e.g., the TAT value of a UE moving from one TAG to another TAG is *reconfigured* by eNB. *Id.* ¶¶ 92, 113, 125; Ans. 6.

Jiang and Jang also determine whether a UE is a first secondary cell for which the base station configures a TA group, or is added to an existing TA group (as discussed in detail above). *See* Appeal Br. 6–7. Jiang makes clear that adding an uplink carrier CC for a UE to a base station eNodeB results in allocation of a new TA group ID for the added CC *if* the added CC does not belong to the same band as a CC that is currently configured by eNodeB. Jiang ¶¶ 39, 59, 128. Jang starts a second TAT if TA information of a second group, different than a primary cell, is received. Jang ¶¶ 9, 10, 92, 113. A controller starts a first TAT for a first group and a first cell, and a second TAT for a second group when TA information is received. *Id.* ¶ 113.

These interrelated teachings of Jiang and Jang regarding adding a new UE (CC) and secondary cell that do not match an existing TAG as a new TA group with a new TAT value provide motivation for the combination. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The Examiner also explains where Jang teaches a carrier aggregation processor 1211 and controller 1209 that configure carrier aggregation, TAG, and TAT value for a certain UE. Final Act. 6. Appellant's arguments that Jiang and Jang do not teach a processor and memory with computer code configured to perform the functions recited in claim 8 (Appeal Br. 6–8) do not address the Examiner's findings in the Office Action as discussed above. We thus are unpersuaded of Examiner error. *See* 37 C.F.R. § 41.37(c)(1)(iv) (the Appeal Brief "shall explain why the examiner erred as to each ground of rejection contested by appellant"); *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (noting the Board's long-standing practice under its rules "to require an applicant to identify the alleged error in an examiner's rejections" and holding "[m]oreover, even assuming that the examiner had failed to make a prima facie case, the Board would not have erred in framing the issue as one of 'reversible error.'"). We agree that Jang teaches the claimed base station components. Jang ¶¶ 124–26, Fig. 12; *see* Final Act. 6.

Thus, we sustain the rejection of claim 8 and claims 11 and 19, which fall therewith.

Claim 10

Claim 10 recites that the base station determines whether all of the secondary cells in the timing advance group of the secondary cell are released and releases a configuration of the time alignment timer if all of the secondary cells are released. Appeal Br. 12–13 (Claims App.).

The Examiner correctly finds that Jang deactivates SCells belonging to a corresponding TAG when the TAT for a UE expires. Jang ¶ 126 (citing Fig. 8 embodiment); Final Act. 8 (citing *id.*). Jang teaches that "[i]f the TAT [of a group] expires, it is regarded that the TA information is no longer valid such that the UE cannot transmit data on the corresponding carriers before receiving new TA information from the eNB." Jang ¶ 54.

The Examiner reasons that the expiration of a TAT of a TAG results in the release of that TAT, as claimed, because:

> In the same sentence, Jang describes the TAT expiring. Here, the TAT expires because it is no longer the correct TAT (not simply that the timer has hit zero, but that the timer needs a new starting value). One of ordinary skill in the art would appreciate that a TAT expiring means that it is released.

Ans. 9; *In re Berg*, 320 F.3d 1310, 1315 (Fed. Cir. 2003) ("As persons of scientific competence in the fields in which they work, examiners and administrative patent judges are responsible for making findings, informed by their scientific knowledge, as to the meaning of prior art references to persons of ordinary skill in the art and the motivation those references would provide to such persons. Absent legal error or contrary factual evidence, those findings can establish a prima facie case of obviousness.").

In response, Appellant argues that "just because a time expires does not necessarily mean that it is released. More importantly, Jang paragraph 0126 does not suggest releasing a configuration of a time alignment timer specifically ***in response to a determination that all secondary cells are released.***" Reply Br. 9–10 ("nothing . . . [in] Appellant's own specification suggests that a timer expiring is another term for releasing a timer.").

The Examiner has the better position. Appellant does not dispute that Jang's deactivation of the SCells belong to the corresponding TAG results in all secondary cells in the timing advance group of the secondary cell being *released* as recited in claim 10. *See* Reply Br. 9 (arguing that even if Jang's deactivation of the SCells corresponds to the claimed determination that all secondary cells in the timing advance group are released, Jang, para. 126 still does not suggest releasing a configuration of the time alignment timer); *see* 37 C.F.R. § 41.37(c)(1)(iv); *Jung*, 637 F.3d at 1365.

In Jang, when a TAT expires in a TAG, the UE stops uplink data transmission in all cells in the TAG and "delivers the PUCCH/SRS resource *release* indication to the RRC layer at steps **811**." Jang ¶ 98 (emphasis added). "If the TAT expires, it is regarded that the TA information is no longer valid such that the UE cannot transmit data on the corresponding carriers before receiving new TA information from the eNB." *Id.* ¶ 54.

As discussed above, *with new TA information comes a new TAT value* for a UE or carrier cell. *See id.* ¶¶ 58, 97, 104–06. In addition, Jang teaches:

> [107] When the STAG TAT expiration is notified to the eNB as shown in the embodiment 2-2 of FIG. **8**, the eNB receives the RRC message informing of the STAG TAT expiration from the UE at step **1011.**
> [108] The eNB may perform the procedure for deactivating the corresponding SCell or releases the resource allocated to the SCell by transmitting an RRC message at step **1013.**

Id. ¶¶ 107, 108. Therefore, SCells belonging to a TAG are deactivated and released if a TAT for the TAG expires. If the TAT for a TAG expires and all of the SCells in that TAG are released, the TAT, whose *raison d'etre* is to ensure validity of TA information for the cells in that TAG, is released along with the other resources allocated to those SCells and that TAG.

These teachings of Jang also correspond to the description of this claimed subject matter in Appellant's Specification. The Specification discloses "the following principles shall be observed as to when to provide or release a TAT value to a TA group including only Scells." Spec. 10.

> Under a third principle, both the user equipment and base station release a TAT configuration via either explicit or implicit signaling if a last Scell in a group is released, where the signaling means that the base station transmits the signaling and then the user equipment releases the TAT configuration in response to the received signaling from the base station; and the implicit signaling means an automatic release by the user equipment.

Id. As discussed above, Jang delivers a *resource release indication* to the RRC layer "when all of the TATs expire" and the *resources* provided in an RRC message to a UE *include* carrier configuration for the aggregation, *TAG configuration*, and *TAT values* of the respective TAGs from the eNB. *Id.* ¶ 97, Fig. 8. If a TAT expires, SCell resources are released. *Id.* ¶ 108. New TA information must be sent before a UE can transmit. *Id.* ¶ 54. The uplink of a UE to the eNB must be reset after a TAT expires, and Jang resets the link by transmitting new TA information for the SCells with *a new TAT value*. *Id.* ¶¶ 49, 54, 59, 60, 63–73, 97–111, Figs. 8–10.[3] Thus, an expired TAT is "released" and a new TAT value is received with TA information.

Accordingly, we sustain the rejection of claim 10.

[3] Boström, which is discussed below in the next rejection, provides evidence that it is known for a UE to maintain one TAT per *serving cell* or at least one timer (TAT) per *group of serving cells* that are expected to share a common TA value. Boström ¶ 53. SCells are assumed to be unsynchronized when the TAT expires, and an eNB may decide not to keep de-activated SCells in a synchronized state. *See Id.* ¶¶ 49, 54, 59.

Claim 17 Rejected Over Park and Boström

Independent claim 17 recites steps of transmitting a TAT value in a media access control (MAC) layer signal and using a logic channel identifier to identify the MAC layer control element that identifies the TAT value and the corresponding TAG. Appeal Br. 13 (Claims App.). Furthermore, in response to determining that the secondary cell is added to an existing TAG, the existing TAT value of a secondary cell is reconfigured with a TAT value already configured for the TAG. *Id.*

The Examiner finds that Park teaches the first set of limitations and Boström teaches the reconfiguration of the secondary cell with a TAT value of the TAG. Final Act. 11–13. Appellant's arguments that Boström does not teach identification of a TAG by a MAC layer control element identified using a logical channel identifier (Appeal Br. 10) are not persuasive because the Examiner has relied on Park to teach these features. Final Act. 11–12.

Appellant's argument that Park does not teach a MAC control element that identifies a TAG also is not persuasive because it does not address the findings of the Examiner in this regard. Appeal Br. 10 (citing Park ¶ 39).

The Examiner correctly finds that Park teaches a base station (eNB) that transmits a timing advance command (TAC) to a UE to maintain uplink timing alignment and the UE applies the TAC and starts a TAT when the TAC is received. Park ¶ 39 (cited in Final Act. 11). Park also transmits a timer value (TAT value) from a base station (eNB) to a terminal (UE) via a MAC signal with a logic channel ID in the MAC control element, and the timer value corresponds to the claimed TAT. *Id.* (cited in Final Act. 12). Appellant's arguments do not address these teachings of Park or the findings of the Examiner and thus do not identify error. 37 C.F.R. § 41.37(c)(1)(iv).

Park teaches that a terminal (UE) receives a timing advance command (TAC), which corresponds to the claimed Timing Advance Group to which the UE is added, and a TAT value for a particular cell that is granted access to the network by the base station through system information, and starts the TAT. Park ¶ 14. The time advance command (TAC) refers to the adjustable time alignment (TA) value discussed above that is given to a TA group. *Id.* ¶ 13. The TAC from the base station is only valid for a certain time duration that is set by the TAT. *Id.* The received TAT is started when a UE receives the TAC from the base station. *Id.* ¶ 14. The TA value and TAT value are transmitted from the base station to the UE via a MAC signal and control element and logical channel ID included in the MAC header as the Examiner correctly finds. *Id.* ¶ 39 (cited in Final Act. 12). Appellant's argument that Boström does not teach a TAG identified by a MAC layer control element using a logical channel identifier (Reply Br. 10) does not address Park's teachings cited by the Examiner and thus does not apprise us of error.

Park updates individual UEs to receive a TAC based on their distance from the center of the cell. Park ¶¶ 12, 13, 39. Boström teaches UEs in "a *grouping concept* [so that] a TA command might only contain *one value per group*, while for an individual TA update, the TA command might include one value per activated serving cell" (Boström ¶ 52 (emphasis added), and a UE has one TAT per serving cell *or* one timer per group of serving cells that share a common TA value (*id.* ¶ 53). Jiang and Jang provide background evidence that a skilled artisan would understand the teachings of Park and Boström to mean that UEs can be configured as single serving cells or added to TAGs that share the same TA value as discussed above for the previous rejection. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013).

The Examiner correctly relies on Park to teach TAT values in a MAC layer signal with logical channel identifier and Boström to teach one timer (TAT) per TAG (group that shares a TA value) as claimed. Ans. 9–10; Final Act. 11. Merely reciting a claim limitation and arguing that the prior art does not teach that particular limitation, without any further analysis, does not apprise us of Examiner error. 37 C.F.R. § 41.37(c)(1)(iv); *Jung*, 637 F.3d at 1365; *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (holding that the Board reasonably interpreted 37 C.F.R. § 41.37(c)(1)(vii) (predecessor to § 41.37(c)(1)(iv)) to require "more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.").

Thus, we sustain the rejection of claim 17.

CONCLUSION

Claims Rejected	**35 U.S.C. §**	**Reference/Basis**	**Affirmed**	**Reversed**
8, 10, 11, 19	103(a)	Jiang, Jang	8, 10, 11, 19	
17	103(a)	Park, Boström	17	
Overall Outcome			8, 10, 11, 17, 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)(1)(iv).

AFFIRMED