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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ALBERTO RICO ALVARINO,
KAPIL BHATTAD, and PETER GAAL

Appeal 2019-003504
Application 15/711,810
Technology Center 2400

Before ROBERT E. NAPPI, JOHN D. HAMANN, and
MATTHEW J. McNEILL, *Administrative Patent Judges*.

HAMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–37. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.²

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Qualcomm Incorporated. Appeal Br. 3.

² Our Decision relies upon Appellant's Appeal Brief (“Appeal Br.,” filed Jan. 15, 2019), Reply Brief (“Reply Br.,” filed Mar. 28, 2019), and Specification (“Spec.,” filed Sept. 21, 2017), as well as the Examiner's Answer (“Ans.,” mailed Feb. 6, 2019), the Advisory Action (“Adv. Act.,” mailed Oct. 25, 2018), and the Final Office Action (“Final Act.,” mailed Aug. 29, 2018).

CLAIMED SUBJECT MATTER

Appellant's claimed invention "relates generally to communication systems, and more particularly, to methods and apparatus for determining when to re-tune radio components of a wireless device." Spec. ¶ 2. Claim 1 is representative of the subject matter on appeal and is reproduced below.

1. A method for wireless communications by a user equipment (UE), comprising:
 - determining first resources assigned to the UE in a first subframe and second resources assigned to the UE for uplink transmissions in a second subframe, wherein the first subframe is different than the second subframe;
 - determining whether to retune radio frequency (RF) circuitry prior to transmitting in the second subframe based on at least one rule involving an overlap between the first resources and second resources; and
 - retuning the RF circuitry prior to transmitting in the second subframe upon determining to retune based on the at least one rule.

REJECTIONS

- (1) The Examiner rejected claims 1–4, 14, 15, 18–21, 31, 32, 35, and 36 under 35 U.S.C. § 103(a) as being unpatentable over Sun (US 7,342,904 B2; issued Mar. 11, 2008). Final Act. 2–7.
- (2) The Examiner rejected claims 5–12, 17, 22–29, 34 and 37 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Sun and Sartori (US 2016/0353476 A1; published Dec. 1, 2016). Final Act. 8–11.
- (3) The Examiner rejected claims 13 and 30 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Sun, Sartori, and Choi (US 8,914,019 B1; published Dec. 16, 2014). Final Act. 11.

(4) The Examiner rejected claims 16 and 33 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Sun and Choi. Final Act. 12.

ISSUE

The dispositive issue for this appeal is whether Sun teaches or suggests determining whether to retune RF circuitry prior to transmitting in a second subframe.

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments that the Examiner errs. We find Appellant's arguments discussed herein³ persuasive.

Appellant argues that Sun fails to teach or suggest “determining whether to retune . . . [RF] circuitry prior to transmitting in the second subframe,” as recited in independent claim 1, and as recited in commensurate scope in independent claims 18 and 35. Appeal Br. 10–13. More specifically, Appellant argues that Sun does not teach or suggest “any transition in time from the odd overlay in [Sun's Figure] . . . 2 to the even overlay of [Sun's Figure] . . . 3.” Reply Br. 2 (citing Sun, Figs. 2–3); Appeal Br. 10–11. Appellant argues that Sun's Figure 2 merely “illustrates a situation where the ratio of the narrow-band chip rate to the wideband chip rate (i.e., ratio of the bandwidths) is an odd integer (e.g., three).” Reply Br. 2 (citing Sun, Fig. 2, 5:27–32). On the other hand, Sun's Figure 3 “illustrates a situation where the ratio of the narrow-band chip rate to the wideband chip rate (i.e., ratio of the bandwidths) is an even integer (e.g.,

³ Because we agree with at least one of the dispositive arguments advanced by Appellant, we need not reach the merits of Appellant's other arguments.

four),” according to Appellant. Reply Br. 2 (citing Sun, Fig. 3). Appellant argues, “[h]owever, *Sun* does not state that the communication system described in *Sun* would ever transition from a state shown in F[igure] 2 to a state shown in F[igure] 3 of *Sun*.” *Id.* at 3. In addition, Appellant argues that Sun’s teaching that “the number of underlay signals . . . is not critical,” does not teach “that there is a transition from an even number to an odd number of underlaid narrowband signals within the wideband bandwidth or that a re-alignment of the offsets occur.” Appeal Br. 10–11 (quoting Sun, 5:54–59); Reply Br. 3.

The Examiner finds that Sun teaches or suggests this limitation. Final Act. 3; Ans. 15–18. The Examiner “admit[s] that Sun does not expressly show retuning prior to transmitting in the second subframe.” Ans. 15. The Examiner finds, however, that Sun’s Figure 2 and Figure 3 illustrate retuning, “and would be considered obvious to one of ordinary skill in the art when considering a transition in time from the odd overlay in Fig[ure] 2 to the even overlay of Fig[ure] 3.” Ans. 16. The Examiner also finds that Sun teaches “that the number of underlay is not critical, only that they are preferable associated with carrier frequencies selectively spaced with respect to the wideband carrier frequency.” Final Act. 3 (citing Sun, 5:54–59). The Examiner finds that “[t]ransitioning from an even to odd number of [narrow band] signals, or vice versa, results in aligning/spacing the offset prior to transmitting the different/transitioned [narrow band] signals. *Id.* (citing Sun, Figs. 2–3).

We agree with Appellant that the Examiner errs. While we agree with the Examiner that Sun teaches that the underlay narrowband signals should have carrier frequencies selectively spaced from the wideband carrier

frequency, we disagree that the cited portions of Sun teach or suggest transitioning from an odd to even number of narrow band signals (e.g., transitioning from Figure 2 to Figure 3), especially with respect to a second subframe of a particular resource. *See* Sun, Figs. 2–3, 5:54–59. Without such a teaching, the Examiner’s finding that Sun teaches or suggests retuning falls. Moreover, we are not persuaded by the Examiner’s finding of what one of ordinary skill in the art would have found obvious “when considering a transition in time” from Sun’s Figure 2 to Figure 3, as there is no support in the record for teaching or suggesting that transition.

Accordingly, we do not sustain the Examiner’s rejection of independent claims 1, 18, and 35. With respect to the Examiner’s rejections of the dependent claims, the Examiner relies on the above findings and the additional cited references do not cure the above deficiencies. Final Act. 6–12; Ans. 18–19. Accordingly, we also do not sustain the Examiner’s rejections of claims 2–17, 19–34, 36, and 37.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-4, 14, 15, 18-21, 31, 32, 35, 36	103(a)	Sun		1-4, 14, 15, 18-21, 31, 32, 35, 36
5-12, 17, 22-29, 34, 37	103(a)	Sun, Sartori		5-12, 17, 22-29, 34, 37
13, 30	103(a)	Sun, Sartori, Choi		13, 30
16, 33	103(a)	Sun, Choi		16, 33
Overall Outcome				1-37

REVERSED