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.
15/115,194	07/28/2016	Filip Mestanov	P41653 US1	5608

152435 7590 06/18/2020

SAGE PATENT GROUP/ZACCO
PO BOX 30789
RALEIGH, NC 27622-0789

EXAMINER
CHO, HONG SOL

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
06/18/2020	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):

outsourcing@zacco.com
zaccoinstructions@sagepat.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FILIP MESTANOV, TOMAS HEDBERG,
OUMER TEYEB, and JARI VIKBERG

Appeal 2018-008959
Application 15/115,194
Technology Center 2400

Before MARC S. HOFF, JOHNNY A. KUMAR, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

AMUNDSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] seeks our review under 35 U.S.C. § 134(a) from a final rejection of claims 23, 26–28, 30–40, and 42–44. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

---

[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42 (2017). Appellant identifies the real party in interest as Telefonaktiebolaget LM Ericsson. Appeal Br. 2.

STATEMENT OF THE CASE

The Invention

According to the Specification, the invention "relates to a method of establishing a communications interface between a first access node arranged to operate according to a first radio access technology and one or more second access nodes arranged to operate according to a second radio access technology." Spec. 1:3–6.[2] The Specification explains that "user equipments, such as mobile phones," typically support "wireless technologies such as Wireless Local Area Networks, commonly referred to as WLAN, in addition to the cellular standards," such as Universal Terrestrial Radio Access Network ("UTRAN") and Long Term Evolution ("LTE"). *Id.* at 1:26–28; *see id.* at 1:12–22. According to the Specification, however, "there is insufficient coordination and control of the combined cellular and WLAN network" because "the WLAN network is still not sufficiently tightly integrated with the cellular network." *Id.* at 2:12–14.

Hence, the invention endeavors "to provide embodiments solving the problem of integrating access nodes arranged to operate according to a second radio access technology," e.g., WLAN, "with access nodes arranged to operate according to a first radio access technology," e.g., UTRAN or LTE. Spec. 2:17–20. In addition, the invention endeavors "to provide embodiments establishing a direct communications interface between one or more second radio access nodes and a first radio access node, thus providing

[2] This decision uses the following abbreviations: "Spec." for the Specification, filed January 31, 2014; "Final Act." for the Final Office Action, mailed February 27, 2018; "Appeal Br." for the Appeal Brief, filed June 27, 2018; "Ans." for the Examiner's Answer, mailed July 19, 2018; and "Reply Br." for the Reply Brief, filed September 17, 2018.

for a full integration of the second radio access nodes toward a first radio access network." *Id.* at 2:22–25, code (57).

Exemplary Claims

Independent claims 23 and 39 exemplify the claims at issue and read as follows:

> 23. A method, performed in a first access node in a wireless network, of establishing a communications interface between the first access node, arranged to operate according to a first radio access technology (RAT), and one or more second access nodes arranged to operate according to a second radio access technology, the method comprising:
>
> discovering one or more second access nodes based on receipt of respective radio signals representative of each second access node, wherein said discovering one or more second access nodes comprises intercepting, by the first access node, radio signals originating from respective second access nodes;
>
> selecting a second access node of the discovered one or more second access nodes for establishing a communications interface with;
>
> deriving a transport address for the selected second access node from a node-related identity retrieved in the radio signal;
>
> sending an interface setup request message to the selected second access node; and
>
> receiving an interface setup response message from the selected second access node.
>
> 39. A method, performed in a second access node, arranged to operate according to a second radio access technology, in a wireless network, of establishing a communications interface to a first access node arranged to operate according to a first radio access technology (RAT), the method comprising the steps of:
>
> receiving an interface setup request message from the first access node; and

sending an interface setup response message to the first access node.

Appeal Br. 14, 16–17 (Claims App.).

The Prior Art Supporting the Rejections on Appeal

As evidence of unpatentability under 35 U.S.C. § 103, the Examiner relies on the following prior art:

Lee et al. ("Lee")	US 2012/0264418 A1	Oct. 18, 2012
Gage et al. ("Gage")	US 2014/0341182 A1	Nov. 20, 2014 (filed May 15, 2013)
Lim	US 9,179,375 B2	Nov. 3, 2015 (filed Sept. 28, 2010)
Zhang	US 9,591,677 B2	Mar. 7 ,2017 (filed Mar. 25, 2013)

The Rejections on Appeal

Claims 23, 26–28, 30, 32, 33, 36–40, and 44 stand rejected under 35 U.S.C. § 103 as unpatentable over Lee and Lim. Final Act. 2–4.

Claims 31, 34, and 35 stand rejected under 35 U.S.C. § 103 as unpatentable over Lee, Lim, and Gage. Final Act. 4–5.

Claims 42 and 43 stand rejected under 35 U.S.C. § 103 as unpatentable over Lee, Lim, and Zhang. Final Act. 5.

ANALYSIS

We have reviewed the rejections in light of Appellant's arguments that the Examiner erred. For the reasons explained below, we agree with the Examiner's unpatentability determinations. We adopt the Examiner's findings and reasoning in the Final Office Action and Answer. *See* Final Act. 2–7; Ans. 3–4. We add the following to address and emphasize specific findings and arguments.

The § 103 Rejection of Claims
23, 26–28, 30, 32, 33, 36–40, and 44

CLAIM 23: A FIRST ACCESS NODE INTERCEPTING RADIO SIGNALS FROM A SECOND ACCESS NODE

As noted above, the § 103 rejection of claim 23 rests on Lee and Lim. *See* Final Act. 2–3. Appellant asserts that the Examiner erred in rejecting claim 23 because Lee fails to teach or suggest "an access node, operating according to a first RAT, intercepting, i.e., listening to (and decoding), over-the-air signals from access nodes of a different (second) RAT, and thereby discovering those access nodes of the different RAT." Appeal Br. 9 (emphasis omitted); *see* Reply Br. 2, 6, 8. Appellant contends that Lee "is only concerned with details of a single RAT, namely the LTE RAT." Appeal Br. 9 (citing Lee ¶¶ 4–5); *see id.* at 10–11; Reply Br. 7.

As for Lim, Appellant concedes that Lim discloses different base stations "operating at different RATs." Appeal Br. 9 (quoting Final Act. 3); *see* Reply Br. 8. But Appellant contends that Lim fails to teach or suggest one of the base stations "operating according to a first RAT, intercepting radio signals originating from access nodes operating according to a second RAT, as required by claim 23." Appeal Br. 9–10 (emphasis omitted). Further, Appellant urges that Lim lacks a "suggestion that an access node operating to one RAT can or should intercept radio signals originating from access nodes operating according to" a different RAT. Reply Br. 8.

Appellant's arguments do not persuade us of Examiner error because they attack the references individually. For instance, Appellant argues that Lee does not disclose different RATs according to claim 23, while the Examiner cites Lim as teaching or suggesting that feature. Similarly, Appellant argues that Lim does not disclose intercepting radio signals

according to claim 23, while the Examiner cites Lee as teaching or suggesting that feature. Where, as here, a rejection rests on the combined disclosures in the references, an appellant cannot establish nonobviousness by attacking the references individually. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); Ans. 3. For the reasons explained below, the combined disclosures in Lee and Lim teach or suggest the disputed limitations in claim 23. *See* Final Act. 3, 7; Ans. 3.

Specifically, Lee explains that macrocell base stations "may perform handover and load balancing by exchanging information through the X2 interface." Lee ¶ 4. Lee also explains that femtocell base stations "may perform various tasks similar to those of macrocell base stations" but the "LTE standard specification does not define an X2 interface for femtocell base stations." *Id.* ¶ 5. Hence, Lee discloses a method "for establishing an X2 interface between a femtocell base station and a neighbor femtocell base station." *Id.* ¶ 8; *see id.* ¶¶ 36, 40, 61–66, Fig. 4.

In Lee's method, a femtocell base station in a listening mode intercepts "signals broadcast from the one or more neighbor base stations." Lee ¶¶ 10, 13, 41; *see id.* ¶¶ 21, 61–63, Fig. 4; Final Act. 3, 7. Then, the intercepting femtocell base station extracts cell information from the intercepted signals and based on the extracted cell information identifies femtocell base stations among the neighbor base stations. Lee ¶¶ 10–11, 41; *see id.* ¶¶ 63–64, Fig. 4; Final Act. 3.

To establish an X2 interface between an intercepting femtocell base station and a neighbor femtocell base station, the base stations exchange messages. Lee ¶¶ 71–75, Fig. 6; *see id.* ¶ 18; Final Act. 3. In particular, an intercepting femtocell base station transmits an "X2 setup request message"

to a neighbor femtocell base station. Lee ¶¶ 72, 74, Fig. 6; *see id.* ¶¶ 26, 54; Final Act. 3. "In response to the X2 setup request message," the neighbor femtocell base station transmits an "X2 setup response message" to the intercepting femtocell base station. Lee ¶¶ 73–74, Fig. 6; *see id.* ¶¶ 26, 54; Final Act. 3. "By exchanging the X2 setup request message and the X2 setup response message," the femtocell base stations establish an X2 interface that enables the "femtocell base stations to perform various functions of [an] X2 interface, including handover and load balancing." Lee ¶¶ 74–75; *see id.* ¶¶ 19, 40, claim 11.

Lim discloses femtocell base stations equipped with "a plurality of radio access technologies (RATs)," namely, "a first RAT such as 3GPP LTE" and "a second ratio [sic] access technology (RAT) such as a wireless local area network (WLAN)." Lim 7:54–61, 8:50–56; *see id.* at 3:7–11, 3:22–27, 6:43–44, 8:62–67; Final Act. 3, 7. Lim explains that equipping femtocell base stations with multiple RATs permits a terminal to communicate with a target femtocell base station "by using the most suitable radio access technology (RAT)" when the terminal initially accesses the target femtocell base station or performs handover. Lim 3:34–38; *see* Ans. 3–4.

Lim also explains that equipping femtocell base stations with multiple RATs permits a terminal to "selectively use [the] RAT having the best access quality according to a channel state among the RATs provided by" different base stations when communicating simultaneously with different base stations. Lim 8:4–11; *see id.* at 7:54–61, 8:62–67; Ans. 3–4 (citing Lim 7:54–61, 8:4–12). Using the RAT having the best access quality for each base station distributes a terminal's traffic between different base stations,

and thus "improv[es] communication quality and the bandwidth of the terminal." Lim 8:4–24; *see id.* at 2:7–12, 6:1–7, 9:19–26; *see* Ans. 3–4.

As the Examiner correctly finds, (1) Lee discloses femtocell base stations that intercept radio signals originating from other femtocell base stations, (2) Lim discloses femtocell base stations using different RATs, and (3) the femtocell base stations correspond to the claimed "access nodes." *See* Final Act. 3, 7; Ans. 3; Lee ¶¶ 10, 13, 21, 41, 61–63, Fig. 4; Lim 3:7–11, 7:54–61, 8:50–56, 8:62–67. Thus, the combined disclosures in Lee and Lim teach or suggest a first access node operating according to a first RAT, a second access node operating according to a second RAT, and "intercepting, by the first access node, radio signals originating from respective second access nodes" according to claim 23. *See, e.g.*, Final Act. 3, 7; Ans. 3.

CLAIM 23: MOTIVATION TO COMBINE

Appellant disputes that a person of ordinary skill would have had a motivation to combine Lim's teachings with Lee's teachings. *See* Appeal Br. 10–11; Reply Br. 8–9. In particular, Appellant contends that "Lee's technique solves a problem that is LTE-specific" because the "LTE standard specification does not define an X2 interface for femtocell base stations." Appeal Br. 11 (quoting Lee ¶ 5). Appellant asserts that a person of ordinary skill "would not modify Lee to detect non-LTE base stations when Lee specifically seeks to address a definition missing from the LTE standards for LTE base stations." *Id.*

We disagree. A primary reference and a secondary reference may address different problems because any "need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide

a reason for combining" the teachings of references. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). A motivation to combine may come from the references themselves, "from the knowledge of those skilled in the art," or "from the nature of the problem to be solved." *Acoustic Tech., Inc. v. Itron Networked Solutions, Inc.*, 949 F.3d 1366, 1375 (Fed. Cir. 2020). The "desire to enhance commercial opportunities by improving a product or process is universal . . . ." *DyStar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006); *see In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003). Hence, an "implicit motivation to combine" may result from a desire to make a product or process "stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient." *DyStar*, 464 F.3d at 1368.

Here, as discussed above, Lim explains that equipping femtocell base stations with multiple RATs permits a terminal to "selectively use [the] RAT having the best access quality according to a channel state among the RATs provided by" different base stations when communicating simultaneously with different base stations. Lim 8:4–11; *see id.* at 7:54–61, 8:62–67; Ans. 3–4 (citing Lim 7:54–61, 8:4–12). Using the RAT having the best access quality for each base station distributes a terminal's traffic between different base stations, and thus "improv[es] communication quality and the bandwidth of the terminal." Lim 8:4–24; *see id.* at 2:7–12, 6:1–7, 9:19–26; *see* Ans. 3–4. Improving communication quality and terminal bandwidth constitute reasons that would have prompted a person of ordinary skill to combine Lim's teachings with Lee's teachings.

Appellant admits that Lim provides "a very clear explanation of a benefit that arises from allowing a mobile terminal to simultaneously

communicate with two different base stations, using different RATs." Reply Br. 9 (emphasis omitted) (quoting Lim 8:4–11). But Appellant asserts that Lim "provides no explanation at all" about "why Lee's base stations, which operate according to the LTE RAT, should be modified to intercept transmissions from other access nodes, using a different RAT." *Id.* (emphasis omitted).

Appellant's assertion does not persuade us of Examiner error because Lim explains that a femtocell base station with multiple RATs operating simultaneously consumes "much power" and that deactivating unused RATs conserves power. Lim 8:62–67; *see id.* at 9:27–33. In light of that explanation, a person of ordinary skill would have understood that a femtocell base station according to the combined disclosures in Lee and Lim should listen for all potential RATs because a neighbor femtocell base station may have deactivated certain RATs to conserve power.

An obviousness analysis "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418; *see In re Preda*, 401 F.2d 825, 826 (CCPA 1968). "A person of ordinary skill is also a person of ordinary creativity" and "in many cases . . . will be able to fit the teachings of multiple patents together like pieces of a puzzle." *KSR*, 550 U.S. at 420–21. "The rationale of *KSR* does not support [the] theory that a person of ordinary skill can only perform combinations of a puzzle element A with a perfectly fitting puzzle element B." *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1219 (Fed. Cir. 2016). Here, for the reasons discussed above, a person of ordinary skill would have been able to fit Lim's teachings with Lee's teachings to yield claim 23's subject matter.

SUMMARY FOR CLAIM 23

For the reasons discussed above, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claim 23 for obviousness based on Lee and Lim. In our view, the claimed subject matter exemplifies the principle that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 550 U.S. at 416. Thus, we sustain the § 103 rejection of claim 23.

CLAIM 39: ESTABLISHING A COMMUNICATIONS INTERFACE

Appellant asserts that the Examiner erred in rejecting claim 39 because "Lim does not disclose or suggest, alone or in combination with Lee, a second access node operating according to a second RAT that establishes a communications interface to a first access node operating according to a first RAT." Appeal Br. 13 (emphasis by Appellant).

We disagree. For the reasons discussed above for claim 23, the combined disclosures in Lee and Lim teach or suggest a first access node operating according to a first RAT (e.g., LTE) and a second access node operating according to a second RAT (e.g., WLAN). *See* Final Act. 3, 7; Ans. 3; Lee ¶¶ 10, 13, 21, 41, 61–63, Fig. 4; Lim 3:7–11, 7:54–61, 8:50–56, 8:62–67.

In addition, the combined disclosures in Lee and Lim teach or suggest establishing a communications interface by exchanging messages between access nodes. Lee ¶¶ 71–75, Fig. 6; *see id.* ¶ 18; Final Act. 3. In Lee, an intercepting femtocell base station transmits an "X2 setup request message" to a neighbor femtocell base station. Lee ¶¶ 72, 74, Fig. 6; *see id.* ¶¶ 26, 54; Final Act. 3. "In response to the X2 setup request message," the neighbor

femtocell base station transmits an "X2 setup response message" to the intercepting femtocell base station. Lee ¶¶ 73–74, Fig. 6; *see id.* ¶¶ 26, 54; Final Act. 3. "By exchanging the X2 setup request message and the X2 setup response message," the femtocell base stations establish an X2 interface. Lee ¶¶ 74–75; *see id.* ¶¶ 19, 40, claim 11.

Because the combined disclosures in Lee and Lim teach or suggest claim 39's subject matter, we sustain the § 103 rejection of claim 39.

INDEPENDENT CLAIMS 40 AND 44 AND
DEPENDENT CLAIMS 26–28, 30, 32, 33, AND 36–38

Appellant does not argue patentability separately for independent claims 40 and 44 or dependent claims 26–28, 30, 32, 33, and 36–38. *See* Appeal Br. 7–13; Reply Br. 2–9. Hence, we sustain the § 103 rejection of these claims for the same reasons as claims 23 and 39. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The § 103 Rejections of Claims 31, 34, 35, 42, and 43

Claims 31, 34, and 35 depend indirectly from claim 23, while claims 42 and 43 depend directly from claim 40. Appellant does not argue patentability separately for these dependent claims. *See* Appeal Br. 7–13; Reply Br. 2–9. Hence, we sustain the § 103 rejections of these dependent claims for the same reasons as claims 23 and 40. *See* 37 C.F.R. § 41.37(c)(1)(iv).

CONCLUSION

We affirm the Examiner's decision to reject claims 23, 26–28, 30–40, and 42–44.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
23, 26–28, 30, 32, 33, 36–40, 44	103	Lee, Lim	23, 26–28, 30, 32, 33, 36–40, 44	
31, 34, 35	103	Lee, Lim, Gage	31, 34, 35	
42, 43	103	Lee, Lim, Zhang	42, 43	
Overall Outcome			23, 26–28, 30–40, 42–44	

TIME PERIOD FOR RESPONSE

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED