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ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			KIM, MINJUNG	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* RASMUS AXEN and KARL NORRMAN

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Appeal 2019-003595  
Application 15/306,806  
Technology Center 2600

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BEFORE CAROLYND. THOMAS, MICHAEL J. STRAUSS, and  
JEREMY J. CURCURI, *Administrative Patent Judges*.

CURCURI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1, 2, 4–13, 41, 42, and 44–53. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

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<sup>1</sup> 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 Telefonaktiebolaget LM Ericsson. Appeal Br. 1.

### CLAIMED SUBJECT MATTER

The claims are directed to “techniques relating to the handover of a terminal device between radio access nodes in [a] communication network.” Spec. 1:4–6. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method of operating a first radio access node in a communication network, the method comprising:

determining whether a first base key that is used to determine a first encryption key for encrypting communications between a communication device and the first radio access node can be used by a second radio access node for determining a second encryption key for encrypting communications between the communication device and the second radio access node; and

if the first base key can be used by the second radio access node, sending the first base key to the second radio access node during handover of the communication device from the first radio access node to the second radio access node; and

if the first base key cannot be used:

determining a second base key from the first base key; and

sending the second base key to the second radio access node during handover of the communication device from the first radio access node to the second radio access node.

### REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Cheng	US 6,418,130 B1	July 9, 2002
Barany	US 2009/0041247 A1	Feb. 12, 2009
Brusilovsky	US 2009/0220087 A1	Sept. 3, 2009
Hahn	US 2009/0307496 A1	Dec. 10, 2009

## REJECTIONS<sup>2</sup>

Claims 1, 5–9, 41, and 45–49 are rejected under 35 U.S.C. § 103 as unpatentable over Cheng and Brusilovsky. Final Act. 11–20.

Claims 2 and 42 are rejected under 35 U.S.C. § 103 as unpatentable over Cheng, Brusilovsky, and Hahn. Final Act. 20–21.

Claims 4, 10, 44, and 50 are rejected under 35 U.S.C. § 103 as unpatentable over Cheng, Brusilovsky, and Barany. Final Act. 22–23.

Claims 11–13 and 51–53 are rejected under 35 U.S.C. § 103 as unpatentable over Barany and Brusilovsky. Final Act. 23–29.

## OPINION

### *The Obviousness Rejection of Claims 1, 5–9, 41, and 45–49 over Cheng and Brusilovsky*

The Examiner finds the combined teachings of Cheng and Brusilovsky teach all limitations of claim 1. Final Act. 11–15; *see also* Ans. 3–11.

In particular, the Examiner finds Cheng teaches “determining whether a first base key that is used to determine a first encryption key . . . can be

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<sup>2</sup> The rejection of claims 1, 2, 4–13, 41, 42, and 44–53 under 35 U.S.C. § 112(b) (Final Act. 9–10) has been withdrawn. Ans. 3.

used by a second radio access node for determining a second encryption key,” as recited in claim 1. *See* Final Act. 11–12.

The Examiner finds Brusilovsky teaches “determining a second base key from the first base key; and sending the second base key to the second radio access node during handover of the communication device from the first radio access node to the second radio access node.” *See* Final Act. 13–14. The Examiner reasons “[i]t would have been obvious to one skilled in the art to substitute one encryption key derivation method . . . with another encryption key derivation method . . . to achieve the predictable result of deriving encryption key for secure communication during handover.” Final Act. 14; *see also* Final Act. 15.

Appellant presents the following principal arguments:

- i. Cheng does not teach “determining whether a first base key that is used to determine a first encryption key . . . can be used by a second radio access node for determining a second encryption key” as recited in claim 1. *See* Appeal Br. 8–11; *see also* Reply Br. 2–4. “[D]etermining whether or not a second [network stationary unit (SU)] is part of the same administrative domain is not literally the same as determining whether or not the second SU can use a first base key.” Appeal Br. 9. “[A]ll the SU in Cheng determines is whether or not the other SU is part of the same administrative domain as itself—it does not determine whether or not any of the security associations can be re-used.” Appeal Br. 9. “The fact that two particular SUs are under the control of a common security policy and are managed in an identical manner does not mean they can both use the same base key.” Appeal Br. 9.
- ii. Cheng does not teach the first radio access node makes the determination. *See* Appeal Br. 11–12; *see also* Reply Br. 5–6. “[I]n *Cheng* it

is the target SU that verifies the administrative domain, not the source SU.”

Appeal Br. 11.

iii. The combination of Brusilovsky and Cheng requires more than a simple substitution. *See* Appeal Br. 12–13; *see also* Reply Br. 7–8.

[I]f the key encryption of *Brusilovsky* were to be used with *Cheng*, the source SU would always send the newly derived KeNB\*, not the KeNB used by the source SU. If the target SU does not receive the KeNB actually used by the source SU, the target SU is not able to use the same KeNB used by the source SU, even if both SUs are part of the same administrative domain.

Appeal Br. 13.

We do not see any error in the contested Examiner’s findings. We concur with the Examiner’s conclusion of obviousness.

Regarding Appellant’s argument (i), Cheng discloses “SU<sub>k</sub> 105 then replies to the SA request message by sending the appropriate SA attributes to SU<sub>k+1</sub> 110.” Cheng, col. 5, ll. 40–41. Cheng further discloses “the step of verifying that SU<sub>k</sub> belongs to the same administrative domain as SU<sub>k+1</sub>.” Cheng, col. 5, ll. 45–46. Thus, Cheng discloses re-use of security associations *when* the new stationary unit (SU) and the old stationary unit (SU) belong to the same administrative domain. *See* Cheng, col. 5, ll. 40–41, 45–46. In this disclosure, Cheng’s determination is equivalent to the claimed determination and, thus, Cheng teaches “determining whether a first base key that is used to determine a first encryption key . . . can be used by a second radio access node for determining a second encryption key” as recited in claim 1. Accordingly, Appellant’s argument (i) does not show any error in the Examiner’s findings.

Regarding Appellant's argument (ii), this argument is unavailing because the language of claim 1 does not require the first radio access node to make the determination, and we interpret claim 1 as encompassing arrangements where the determination is made by something other than the first radio access node, such as the target SU in Cheng. *See* Claim 1, Cheng, col. 5, ll. 45–46. Accordingly, Appellant's argument (ii) does not show any error in the Examiner's findings.

Regarding Appellant's argument (iii), this argument does not show any error because we disagree with Appellant's interpretation of the combined teachings of Cheng and Brusilovsky. The Examiner finds Cheng teaches "sending the first base key to the second radio access node," as recited in claim 1. Final Act. 12 (citing Cheng, Fig. 1). The Examiner further finds Brusilovsky teaches "sending the second base key to the second radio access node," as recited in claim 1. Final Act. 13 (citing Brusilovsky, Fig. 4). Together, Cheng and Brusilovsky teach all claim limitations. The Examiner articulated a reason to combine Cheng and Brusilovsky that is rational on its face and supported by evidence drawn from the record. *See* Final Act. 14–15 (citing Brusilovsky Abstract). Appellant has not presented any particularized arguments as to why this reasoning is incorrect. Accordingly, Appellant's argument (iii) does not show any error in the Examiner's findings.

We, therefore, sustain the Examiner's rejection of claim 1.

We also sustain the Examiner's rejection of claims 5–9, which are not separately argued with particularity.

However, unlike claim 1, independent claim 41 requires the first radio access node to make the determination. *See* Claim 41 ("whereby said first radio access node is operative to: determine"). Here, we find Appellant's

argument (ii) persuasive of Examiner error. Apparently recognizing the merits of Appellant's argument (ii), in the Examiner's Answer, the Examiner determines "[i]t would have been obvious to one of ordinary skill in the art to have modified the teaching of method performed at the target SU [(SU<sub>k+1</sub>)] to function at the source SU [(SU<sub>k</sub>)]." Ans. 7. However, on the record before us, we do not see sufficient support for such a modification to Cheng. Further, we do not agree with the Examiner's characterization of Brusilovsky on page 7 of the Examiner's Answer because Brusilovsky appears to send the new key without making a determination as claimed. *See* Brusilovsky, Fig. 4.

We, therefore, do not sustain the Examiner's rejection of claim 41.

We also do not sustain the Examiner's rejection of claims 45–49, which depend from claim 41.

*The Obviousness Rejection of Claims 2 and 42 over  
Cheng, Brusilovsky, and Hahn*

Appellant does not present arguments with respect to this ground of rejection. *See* Appeal Br. 8–13; *see also* Reply Br. 2–8.

We, therefore, sustain the Examiner's rejection of claim 2.

Claim 42 depends from claim 41. The Examiner does not find Hahn cures the deficiency of Cheng and Brusilovsky discussed above when addressing claim 41. *See* Final Act. 20–21; *see also* Ans. 6–8.

We, therefore, do not sustain the Examiner's rejection of claim 42.



*The Obviousness Rejection of Claims 4, 10, 44, and 50 over  
Cheng, Brusilovsky, and Barany*

Appellant does not present arguments with respect to this ground of rejection. See Appeal Br. 8–13; see also Reply Br. 2–8.

We, therefore, sustain the Examiner’s rejection of claims 4 and 10.

Claim 44 and 50 depends from claim 41. The Examiner does not find Barany cures the deficiency of Cheng and Brusilovsky discussed above when addressing claim 41. *See* Final Act. 22–23; *see also* Ans. 6–8.

We, therefore, do not sustain the Examiner’s rejection of claims 44 and 50.

*The Obviousness Rejection of Claims 11–13 and 51–53 over  
Barany and Brusilovsky*

Appellant does not present separate arguments with respect to this ground of rejection. *See* Appeal Br. 8–13; *see also* Reply Br. 2–8.

The arguments related to Cheng are not applicable here because this ground of rejection does not rely on Cheng.

We, therefore, sustain the Examiner’s rejection of claims 11–13 and 51–53.

CONCLUSION

The Examiner’s decision to reject claims 1, 2, 4–13, 41, 42, and 44–53 is affirmed in part.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 5–9, 41, 45–49	103	Cheng, Brusilovsky	1, 5–9	41, 45–49
2, 42	103	Cheng, Brusilovsky, Hahn	2	42
4, 10, 44, 50	103	Cheng, Brusilovsky, Barany	4, 10	44, 50
11–13, 51–53	103	Barany, Brusilovsky	11–13, 51–53	
<b>Overall Outcome</b>			1, 2, 4–13, 51–53	41, 42, 44–50

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART