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Paper No. 8
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA SOLUTIONS AND NETWORKS US LLC, and
NOKIA SOLUTIONS AND NETWORKS OY,
Petitioner,

v.

HUAWEI TECHNOLOGIES CO. LTD.,
Patent Owner.

Case IPR2017-00661
Patent 9,060,268 B2

Before JENNIFER MEYER CHAGNON,
MICHELLE N. WORMMEESTER, and CHRISTA P. ZADO,
Administrative Patent Judges.

CHAGNON, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Nokia Solutions and Networks US LLC, and Nokia Solutions and Networks Oy (collectively, "Petitioner")[1] filed a Petition for *inter partes* review of claims 1–3 ("the challenged claims") of U.S. Patent No. 9,060,268 B2 (Ex. 1001, "the '268 patent"). Paper 2 ("Pet."). Petitioner relies on the Declarations of David Lyon, Ph.D. (Ex. 1003) and Balazs Bertenyi (Ex. 1004) to support its positions. Huawei Technologies Co. Ltd. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp.").

We have authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to all of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we institute trial as to claims 1–3 of the '268 patent.

A. Related Proceedings

The parties indicate that the '268 patent is the subject of the following ongoing district court proceeding: *Huawei Techs. Co. v. T-Mobile US, Inc.*, Case No. 2:16-cv-00057 (E.D. Tex.). Pet. 1; Paper 6, 2.

B. The '268 Patent

The '268 patent is titled "Negotiating Security Capabilities During Movement of UE," and was filed as U.S. application No. 12/717,385 on March 4, 2010. Ex. 1001, at [21], [22], [54]. The '268 patent claims

[1] Petitioner identifies T-Mobile USA, Inc. and T-Mobile US, Inc. as additional real parties-in-interest. Pet. 1.

priority to application PCT/CN2008/072486, filed on September 24, 2008. *Id.* at [63]. The ’268 patent also claims priority to Chinese application No. CN 2007 1 0181068, filed September 29, 2007. *Id.* at [30].

The ’268 patent “relates to communication technologies, and in particular, to a method, system, and apparatus for negotiating security capabilities during movement of a User Equipment (UE).” *Id.* at 1:16–19. Specifically, the ’268 patent describes a method and system “for negotiating security capabilities during movement of a UE, so that the security capabilities can be negotiated when the UE in the idle state moves from an LTE network to a 2G/3G network.” *Id.* at 1:66–2:8.

Figure 1 of the ’268 patent is reproduced below.

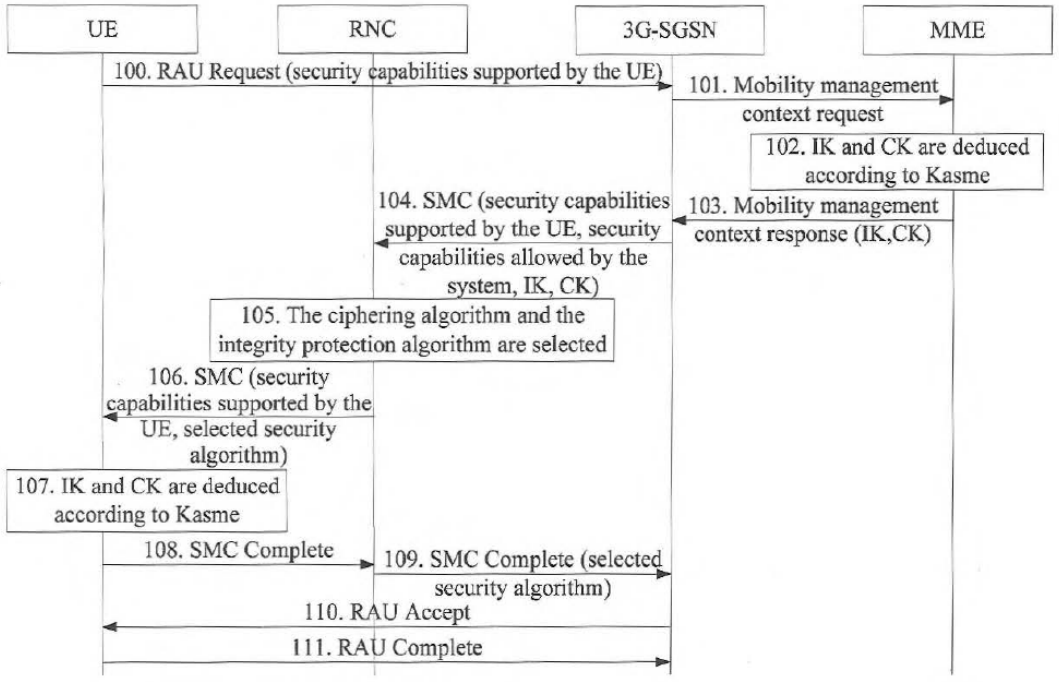
UE
RNC
3G-SGSN
MME
100. RAU Request (security capabilities supported by the UE)
101. Mobility management context request
102. IK and CK are deduced according to Kasme
103. Mobility management context response (IK,CK)
104. SMC (security capabilities supported by the UE, security capabilities allowed by the system, IK, CK)
105. The ciphering algorithm and the integrity protection algorithm are selected
106. SMC (security capabilities supported by the UE, selected security algorithm)
107. IK and CK are deduced according to Kasme
108. SMC Complete
109. SMC Complete (selected security algorithm)
110. RAU Accept
111. RAU Complete

FIG. 1

Figure 1, reproduced above, is a flow chart of a method for negotiating a security capability during movement of a UE, according to an embodiment of the ’268 patent. *Id.* at 3:17–19. According to the method illustrated in

Figure 1, a UE sends a Routing Area Update (RAU) request to the 3G Serving GPRS Support Node (SGSN), at step 100. *Id.* at 4:16–17. The RAU request includes, among other things, the "security capabilities supported by the UE, for example, a ciphering algorithm and/or an integrity protection algorithm." *Id.* at 4:18–23. At steps 101–103, "[t]he 3G SGSN obtains the AV-related keys from the MME through a mobility management context message, where the AV-related keys are deduced according to the root key." *Id.* at 4:24–27.

At step 104, the "SGSN sends a Security Mode Command (SMC) message to the RNC. The message carries the security capabilities supported by the UE, security capabilities allowed by the system, and a security key." *Id.* at 4:51–54. At step 105, "the RNC selects security algorithms, including a ciphering algorithm and an integrity protection algorithm," and at step 106, the RNC "sends an SMC message that carries the security capabilities supported by the UE and the selected security algorithm to the UE." *Id.* at 4:57–61.

At step 107, the "UE deduces the AV-related keys according to its own root key, where the AV-related keys include IK and CK, or an IK' and a CK' further derived from the IK and the CK through unidirectional transformation." *Id.* at 4:64–67. At steps 108 and 109, "the UE . . . sends an SMC Complete message to the RNC [and t]he RNC sends an SMC Complete message that carries the selected security algorithm to the 3G SGSN." *Id.* at 5:4–7. Finally, at step 110, the "3G SGSN sends a RAU Accept message to the UE" and at step 111, the "UE returns an RAU Complete message to the 3G SGSN." *Id.* at 5:10–12.

C. Challenged Claims

Each of the challenged claims is independent. Claims 1–3 of the ’268 patent are reproduced below. For convenience of the discussion, the claims are annotated with Petitioner’s labeling of the claim elements.

> 1. [*1 Pre*] In a mobility management entity (MME) of a long term evolution (LTE) network, a method for negotiating security keys comprising:
>
> [*1A*] receiving a context request for requesting a mobility management context sent by a serving GPRS support node (SGSN) in a second or third generation (2G/3G) network, according to a routing area update (RAU) request from a user equipment (UE) in an idle mode; and
>
> [*1B*] sending the mobility management context to the SGSN, wherein the mobility management context comprises information for determining security capacities supported by the UE and authentication vector (AV)-related keys that are deduced according to a root key of the MME, [*1C*] wherein the AV-related keys comprise an Integrity Protection Key (IK) and a Ciphering Key (CK), or comprise values derived from the IK and the CK through an unidirectional transformation.

Ex. 1001, 11:12–28.

> 2. [*2 Pre*] A mobility management entity (MME) of a long term evolution (LTE) network for negotiating security keys, comprising:
>
> [*2A*] a receiver configured to receive a context request for requesting a mobility management context sent by a serving GPRS support node (SGSN) in a second or third generation (2G/3G) network according to a routing area update (RAU) request from a user equipment (UE) in an idle mode;
>
> [*2B*] a processor configured to deduce authentication vector (AV)-related keys according to a root key of the MME, wherein the AV-related keys comprise an Integrity Protection Key (IK) and a Ciphering Key (CK), or comprise values derived from the IK and the CK through an unidirectional transformation; and

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