

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE (USA) INC., HTC CORPORATION, HTC AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG
ELECTRONICS AMERICA, INC.,
Petitioners,

v.

EVOLVED WIRELESS LLC,
Patent Owner.

Case IPR2016-00757
Case IPR2016-01345¹
Patent 7,881,236 B2

Before WILLIAM V. SAINDON, PATRICK M. BOUCHER, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

¹ These cases have been consolidated. Unless otherwise indicated, citations are to the record of IPR2016-00757.

In response to a Petition (Paper 3, “Pet.”) filed by ZTE (USA) Inc., HTC Corporation, and HTC America, Inc., (collectively, “Petitioner”), we instituted an *inter partes* review of claims 1–10, 12, and 13 of U.S. Patent No. 7,881,236 B2 (“the ’236 patent”). Paper 11 (“Dec.”), 19. Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc., filed a Petition in IPR2016-01345 that was substantially identical to the Petition in this proceeding, and trial was instituted in IPR2016-01345 on the same grounds as in this proceeding. Paper 12, 2. Therefore, IPR2016-01345 was consolidated with this proceeding. *Id.* During the trial, Evolved Wireless LLC (“Patent Owner”) timely filed a Response (Paper 22, “PO Resp.”), to which Petitioner timely filed a Reply (Paper 28, “Reply”). An oral hearing was held on August 8, 2017, and a copy of the transcript was entered into the record. Paper 36 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has shown, by a preponderance of the evidence, that claims 1–10, 12, and 13 are unpatentable.

I. BACKGROUND

A. *The ’236 Patent*

The ’236 patent “relates to a mobile communication technology.” Ex. 1001, col. 1, ll. 17–18. In particular, the patent describes a random access procedure for user equipment (“UE”) and a base station in a telecommunication system. *Id.* at col. 3, ll. 42–59. Figure 1 of the ’236 patent illustrates a particular example of such a telecommunication system—

the Evolved Universal Mobile Telecommunication System (“E-UMTS”), and is reproduced below.

FIG. 1

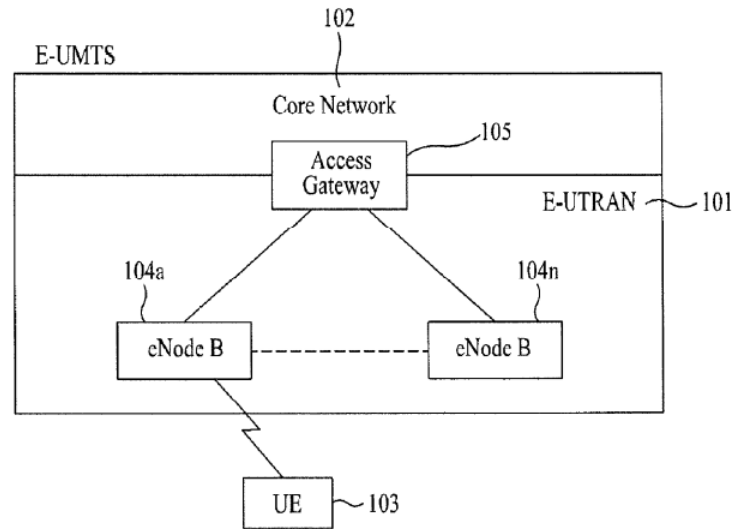


Figure 1 provides a schematic view of a network architecture for the E-UMTS, which may be conceived in terms of two component networks: Evolved UMTS Terrestrial Radio Access Network (“E-UTRAN”) 101 and Core Network 102. *Id.* at col. 1, ll. 26–35. The first of these, E-UTRAN 101, may include user equipment (“UE”) 103, multiple base stations 104 (referred to in the ’236 patent as “eNode B” or “eNB”), and Access Gateway (“AG”) 105. *Id.* at col. 1, ll. 35–39. Access Gateway 105 is positioned at the end of the network and connected to an external network, and can include a portion for processing user traffic and a portion for processing control traffic. *Id.* at col. 1, ll. 39–41.

As the ’236 patent describes, “a UE performs the random access procedure” in a number of instances, including “when the UE performs

initial access” to a base station and “when there is uplink data transmission in a situation where uplink time synchronization is not aligned or where a specific radio resource used for requesting radio resources is not allocated.” *Id.* at col. 3, ll. 42–57. A version of Figure 5 of the ’236 patent annotated by Petitioner (Ex. 2009, 12) is reproduced below.

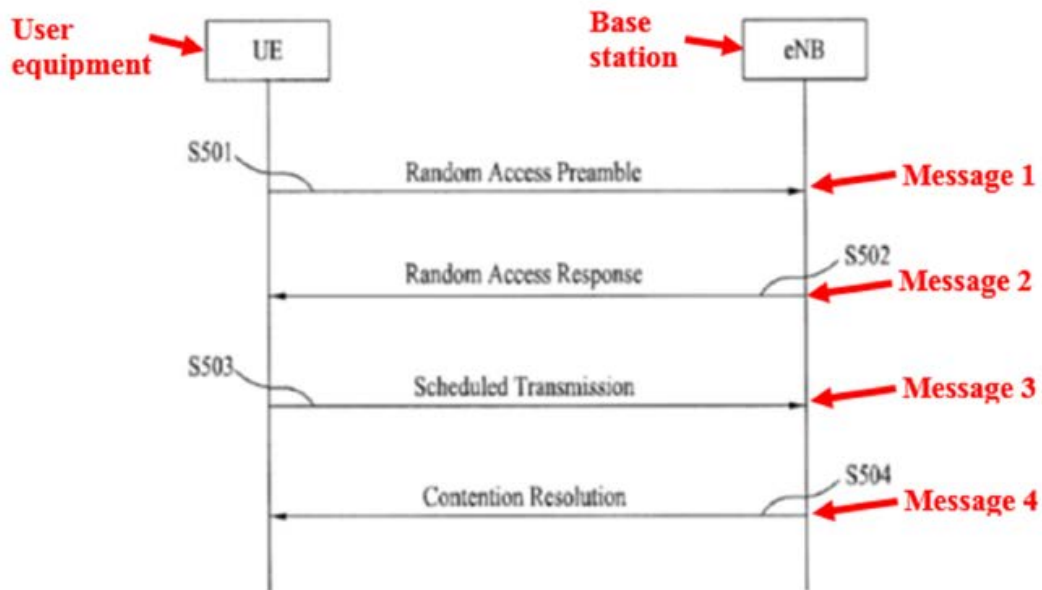


Figure 5 shows an example of a random access procedure performed between user equipment UE and base station eNB. Ex. 1001, col. 6, ll. 53–55. The procedure begins with transmission of a “random access preamble” from the UE to the base station at step S501 (referred to as a “message 1” transmitting step). *Id.* at col. 4, ll. 3–7. The UE receives a “random access response” from the base station at step S502 “in correspondence with the transmitted random access preamble” (referred to as a “message 2” receiving step). *Id.* at col. 4, ll. 7–11. Of particular relevance, the UE then transmits an uplink message to the base station at step S503 (referred to as a “message 3” or “Msg3” transmitting step). *Id.* at col. 4, ll. 11–14. The UE receives a

corresponding “contention resolution” message from the base station at step S504 (referred to as a “message 4” receiving step). *Id.* at col. 4, ll. 14–17.

In the random access procedure, the UE stores data to be transmitted via the message 3 in a “Msg 3 buffer” and transmits the stored data “in correspondence with the reception of an Uplink (UL) Grant signal.” *Id.* at col. 4, ll. 18–21. The UL Grant signal indicates information about uplink radio resources that may be used when the UE transmits a signal to the base station. *Id.* at col. 4, ll. 21–26. For example, the UL Grant could be received on the Physical Downlink Control Channel (PDCCH), indicating that new data may be transmitted, or the UL Grant could be received on the Physical Downlink Shared Channel (PDSCH), which indicates that it was received in a random access response message (i.e., message 2). *Id.* at col. 5, ll. 9–22. Thus, some UL Grants are received as part of the above message 1-2-3-4 random access procedure, and some are not. According to the ’236 patent, then-current LTE system standards provided that data stored in the Msg3 buffer of the UE would be transmitted to the base station “*regardless of the reception mode of the UL Grant signal,*” and that “if the data stored in the Msg3 buffer is transmitted in correspondence with the reception of *all* UL Grant signals, problems may occur.” *Id.* at col. 4, ll. 26–32 (emphases added). Thus, the alleged problem is that the UE could send Msg3 buffer data when it was not supposed to, outside of the proper message 1-2-3-4 random access procedure. The ’236 patent purports to solve such problems. *Id.* at col. 4, ll. 33–34.

Figure 9 of the ’236 patent is reproduced below.

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