

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HUAWEI TECHNOLOGIES CO., LTD.,
Petitioner,

v.

SAMSUNG ELECTRONICS CO., LTD.,
Patent Owner.

Case IPR2017-01980
Patent 8,761,130 B2

Before JAMESON LEE, PATRICK M. BOUCHER, and
KAMRAN JIVANI, *Administrative Patent Judges*.

JIVANI, *Administrative Patent Judge*.

DECISION

Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108(b)

I. INTRODUCTION

Huawei Technologies Co., Ltd. (“Petitioner”)¹ requested an *inter partes* review of claims 9–16 (the “Challenged Claims”) of U.S. Patent No. 8,761,130 B2 (Ex. 1001, “the ’130 patent”). Paper 1 (“Petition” or “Pet.”). Samsung Electronics Co. Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless it is determined that there is a reasonable likelihood that Petitioner will prevail with respect to at least one of the Challenged Claims. Applying this standard, we are not persuaded Petitioner has shown a reasonable likelihood that it would prevail with respect to at least one of the Challenged Claims because the Petition does not establish that the primary reference relied upon is prior art to the ’130 patent. Accordingly, we deny the Petition and decline to institute *inter partes* review of the Challenged Claims for the reasons set forth below.

II. BACKGROUND

A. The ’130 patent (Ex. 1001)

The ’130 patent is related to wireless communication systems and was “considered in the development of the 3rd Generation Partnership Project (3GPP) Evolved Universal Terrestrial Radio Access (E-UTRA) long term evolution (LTE).” Ex. 1001, 1:15–16, 1:25–28. The ’130 patent describes transmitting “control and data information” simultaneously in a Single-

¹ Petitioner identifies the following additional real parties in interest to the Petition: HiSilicon Technologies Co., Ltd., Huawei Device USA, Inc., Huawei Investment and Holding Co., and Huawei Technologies USA, Inc. Pet. 2.

Carrier Frequency Division Multiple Access communication systems. *Id.* at 1:15–19. “Control information” consists of positive and negative acknowledgement information (“ACK/NAK”) and channel quality indicator (“CQI”). *Id.* at 1:36–38. Figure 1 of the ’130 patent is reproduced below.

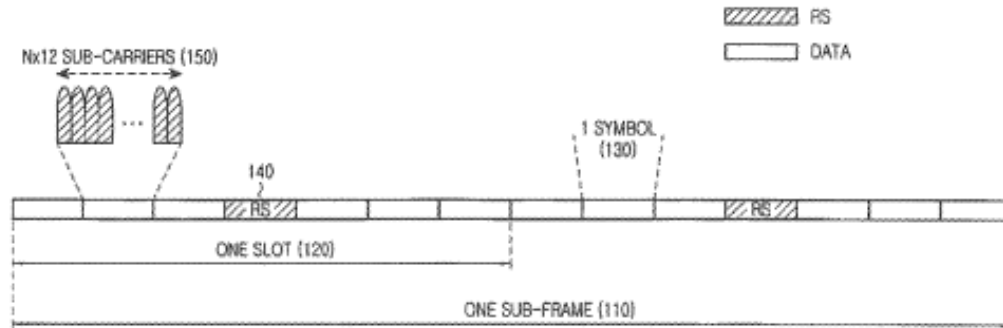


FIG.1

Figure 1 depicts a block diagram of a sub-frame structure 110 used to transmit information. *Id.* at 1:53–55. The sub-frame includes two slots 120. *Id.* at 1:55–56. Each slot further includes seven symbols 130. *Id.* at 1:56–57. The middle symbol in each slot carries the transmission of reference signals (RS) 140, also known as “pilot signals.” *Id.* at 1:61–65. These reference signals are used to provide channel estimation for coherent demodulation of the received signal. *Id.* According to the ’130 patent, the control information should be placed “immediately next to the RS” in order to minimize the bit error rate degradation. *Id.* at 5:57–59. Figure 6 of the ’130 patent is reproduced below.

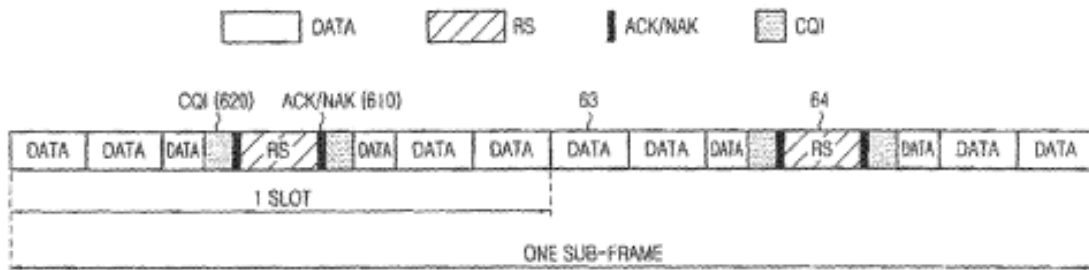


FIG.6

Figure 6 of the '130 patent illustrates the placement of both ACK/NAK bits 610 and CQI bits 620 within a slot of a sub-frame. *Id.* at 5:60–62. “Due to the requirement for better reception reliability, the ACK/NAK bits are placed closer to the RS than the CQI bits.” 5:65–67. Data bits 640 occupy the remaining space of the symbols in the slot, including the otherwise unoccupied space of the symbols containing the control bits. 5:62–65.

B. Illustrative Challenged Claims

Claims 9 and 13 are independent and illustrative of the Challenged Claims. Claims 9 and 13 are reproduced below.

9. An apparatus for transmitting a signal in a slot of a sub-frame in a wireless communication system, the signal including data information and acknowledgement information, the apparatus comprising:

a mapper for mapping a reference signal to a middle symbol in the slot, mapping the data information to remaining symbols in the slot that are not used to map the reference signal, and mapping the acknowledgement information to first symbols among the remaining symbols in the slot, the first symbols not being used to map

reference signals and the first symbols being directly adjacent to the middle symbol; and

a transmitter for transmitting the signal including the mapped data information, the mapped acknowledgement information, and the mapped reference signal,

wherein some of the data information is mapped to the first symbol which are directly adjacent to the middle symbol, and

wherein CQI information is multiplexed with the data information.

Id. at 7:52–8:14.

13. A method for transmitting a signal in a slot of a sub-frame in a wireless communication system, the signal including data information and acknowledgement information, the method comprising:

mapping a reference signal to a middle symbol in the slot;

mapping the data information to remaining symbols in the slot that are not used to map the reference signal;

mapping the acknowledgement information to first symbols among the remaining symbols in the slot, the first symbols not being used to map reference signals and the first symbols being directly adjacent to the middle symbol; and

transmitting the signal including the mapped data information, the mapped acknowledgement information, and the mapped reference signal,

wherein some of the data information is mapped to the first symbols which are directly adjacent to the middle symbol, and

wherein CQI information is multiplexed with the data information.

Id. at 8:26–45.

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