

## EXHIBIT C1

### Invalidity of U.S. Patent No. 9,184,881 in View of U.S. Patent Publication No. US 2008/0253318 A1

U.S. Patent Publication No. US 2008/0253318 A1 (“*Malladi*”), published on Oct. 16, 2008, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of U.S. Patent No. 9,184,881 (“the ’881 patent”), as discussed in detail in the claim chart below.

The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff’s infringement contentions, which Defendants disagree with. As such, nothing in Defendants’ claim charts should be construed as an admission regarding infringement, either literally or under the doctrine of equivalents, or as an admission regarding Defendants’ understanding of the proper scope of the asserted claims. Defendants reserve the right to rely on additional citations or sources of evidence that also may be applicable, or that may become applicable in light of claim construction, changes in GComm’s infringement contentions, and/or information obtained during discovery as the case progresses.

To the extent GComm alleges that *Malladi* does not disclose any particular limitation of the asserted claims of the ’881 patent, either expressly or inherently, it would have been obvious to a person of ordinary skill in the art as of the priority date of the ’881 patent to modify *Malladi* and/or to combine the teachings of *Malladi* with other prior art references, including but not limited to the present prior art references cited in the Cover Pleading and the relevant section(s) of claim charts for other prior art references for the ’881 patent in a manner that would have rendered the asserted claims invalid as obvious.

Defendants reserve the right to amend or supplement this claim chart at a later date as more fully set forth in the Cover Pleading.

**EXHIBIT C1**

**Invalidity of U.S. Patent No. 9,184,881 in View of U.S. Patent Publication No. US 2008/0253318 A1**

| '881 Patent                                                                                                                                                                                                                                                                                                                                                                                                  | U.S. Patent Publication No. 2008/0253318 A1 ( <i>Malladi</i> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>1[pre] A method for feeding back confirmation information on a physical uplink shared channel, which is used for enabling a user equipment to feed back to an eNodeB whether data of a downlink sub-frame is correctly received in a situation that a number of the downlink sub-frames is greater than a number of uplink sub-frames in a time division duplex system, wherein the method comprises:</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p>To the extent the preamble of claim 1 is found to be limiting, <i>Malladi</i> discloses this element. <i>See, e.g.</i>,</p> <p>“Techniques for sending and receiving acknowledgement (ACK) information in a wireless communication system are described. A base station sends control information and data to a user equipment (UE) and receives ACK information from the UE. The base station performs detection for the ACK information based on (i) a first hypothesis for the control information being missed by the UE and (ii) a second hypothesis for the control information being received correctly by the UE. In one design, the ACK information may have a variable size, and the base station may perform detection for the ACK information based on different block codes for the first and second hypotheses. In another design, the ACK information may have a fixed size, and the base station may perform detection for the ACK information based on a single block code and obtain a fixed number of bits for the ACK information for both hypotheses.”</p> <p>[Abstract]</p> <p>“Wireless communication systems are widely deployed to provide various communication content such as voice, video, packet data, messaging, broadcast, etc. These wireless systems may be multiple-access systems capable of supporting multiple users by sharing the available system resources. Examples of such multiple-access systems include Code Division Multiple Access (CDMA) systems, Time Division Multiple Access (TDMA) systems, Frequency Division Multiple Access (FDMA) systems, Orthogonal FDMA (OFDMA) systems, and Single-Carrier FDMA (SC-FDMA) systems.”</p> <p>[0005]</p> <p>“In one design, the ACK information may have a variable size. The base station may perform detection for the ACK information based on a first block code for the first hypothesis and based on a second block code for the second hypothesis. The base station may send one or two codewords of data to the UE. The base station may perform detection for the ACK information based on one block code if one codeword is sent and based on another block code if two codewords are sent. The base station may</p> |

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|  | <p>obtain a first number of bits (e.g., zero bits) for the ACK information for the first hypothesis and may obtain a second number of bits (e.g., one or two bits) for the ACK information for the second hypothesis. The second number of bits may be dependent on the number of codewords sent to the UE.”<br/>[0008]</p> <p>“In another design, the ACK information may have a fixed size. The base station may perform detection for the ACK information based on a single block code for both the first and second hypotheses. The base station may obtain a fixed number of bits (e.g., two bits) for the ACK information for both hypotheses and regardless of the number of codewords sent to the UE. The two bits may be defined based on one format if two codewords are sent and based on another format if one codeword is sent. One 2-bit value may indicate that the control information is missed by the UE. The remaining 2-bit values may convey decoding status of the one or two codewords sent to the UE.”<br/>[0009]</p> <p>“The UE may perform the complementary processing to generate and send the CQI and ACK information, as described below. Various aspects and features of the disclosure are also described in further detail below.”<br/>[0010]</p> <p>“The system may support Hybrid Automatic Repeat Request (HARQ). For HARQ on the downlink, the eNB may send a transmission for a codeword to the UE and may send one or more additional transmissions until the codeword is decoded correctly by the UE, or the maximum number of transmissions has been sent, or some other termination condition is encountered. HARQ may improve reliability of data transmission.”<br/>[0029]</p> <p>“A format 330 includes eight bits for CQI information and two bits for ACK information. One ACK bit may be assigned to a first codeword and may be set to ‘1’ for an ACK to indicate that the first codeword is decoded correctly or to ‘0’ for a NAK to indicate that the first codeword is decoded in error. The other ACK bit may be assigned to a second codeword and may be set to ‘1’ for an ACK to indicate that the second codeword is decoded correctly or to ‘0’ for a NAK to indicate that the second</p> |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | codeword is decoded in error. The 10 total bits for both CQI and ACK information may be jointly encoded with a (24, 10) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”<br>[0038]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1[a] the eNodeB carries, in downlink control information, a number value of the downlink sub-frame corresponding to the confirmation information which is fed back by one uplink sub-frame, and transmits data on a plurality of continuous downlink sub-frames after the sub-frame carrying the downlink control information, wherein the number of the downlink sub-frames which transmit the data is equal to a number of the downlink sub-frames corresponding to the confirmation information fed back by the one uplink sub-frame; | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff’s infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>“Techniques for sending and receiving acknowledgement (ACK) information in a wireless communication system are described. A base station sends control information and data to a user equipment (UE) and receives ACK information from the UE. The base station performs detection for the ACK information based on (i) a first hypothesis for the control information being missed by the UE and (ii) a second hypothesis for the control information being received correctly by the UE. In one design, the ACK information may have a variable size, and the base station may perform detection for the ACK information based on different block codes for the first and second hypotheses. In another design, the ACK information may have a fixed size, and the base station may perform detection for the ACK information based on a single block code and obtain a fixed number of bits for the ACK information for both hypotheses.”<br/>[Abstract]</p> <p>“Techniques for sending and receiving ACK information in a wireless communication system are described herein. A base station may send control information to a UE and may send data in accordance with the control information to the UE. The UE may jointly encode CQI and ACK information based on a block code and may send the CQI and ACK information to the base station. The base station may perform detection for the ACK information based on (i) a first hypothesis for the control information being missed by the UE and (ii) a second hypothesis for the control information being received correctly by the UE.”<br/>[0007]</p> <p>“FIG. 2 shows downlink data transmission and associated control information.”<br/>[0012]</p> |

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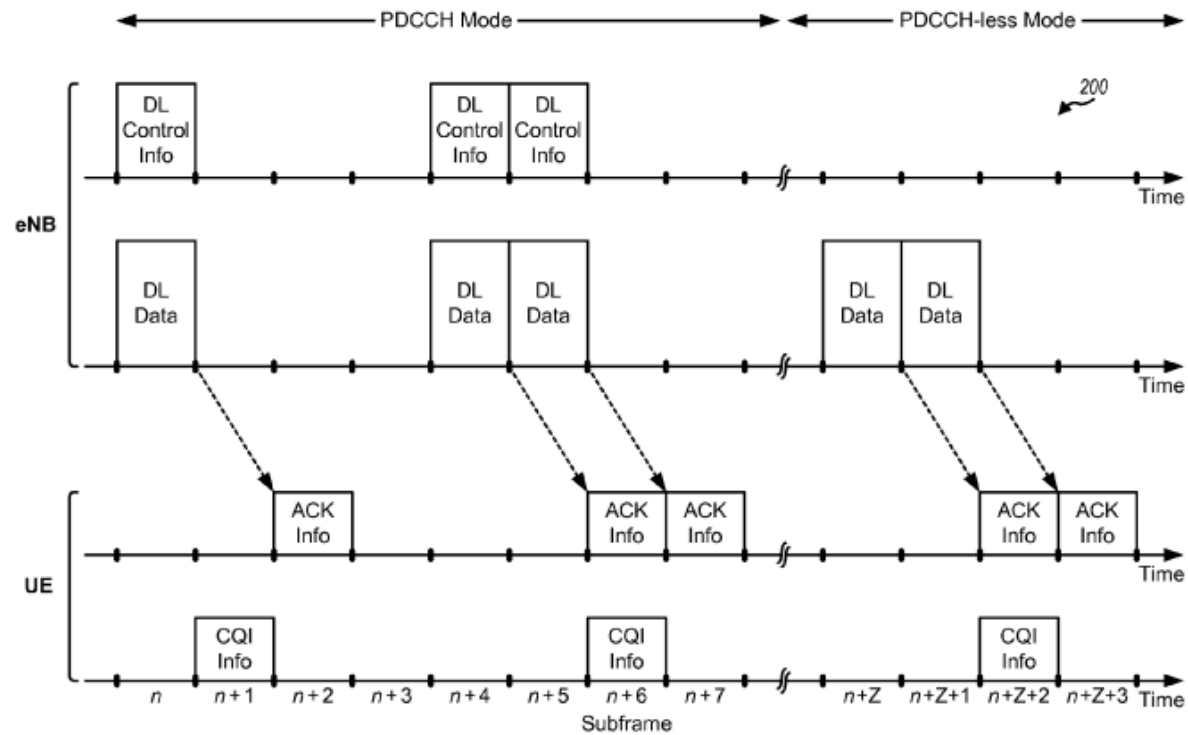


**FIG. 2**

“As shown in FIG. 2, the UE may transmit only CQI information, or only ACK information, or both CQI and ACK information, or neither in any given subframe. The UE may send only CQI information on the PUCCH at a predetermined time frequency location, which may be assigned to the UE by the eNB. The UE may send only ACK information at a variable time frequency location, which may be determined based on an identifier (ID) of a downlink virtual resource block (VRB) used to send data to the UE or an ID of a PDCCH used to send control information to the UE. The UE may send both CQI and ACK information either (i) on the PUCCH at the time frequency location assigned for CQI information, if data is not sent on the uplink, or (ii) on the PUSCH along with data sent on the uplink.

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|  | <p>For clarity, much of the description below assumes that both CQI and ACK information is sent on the PUCCH or PUSCH.”<br/>[0032]</p> <p>“In one design, eNB 110 may send one or two codewords to UE 120 in the PDCCH mode and may convey the number of codewords in the control information sent on the PDCCH. The eNB may send each codeword separately with HARQ. The UE may decode each codeword separately and may send ACK information for one or two codewords received from the eNB as described below. In one design, the eNB may send one codeword at a time to the UE in the PDCCH-less mode. In other designs, the eNB may send fewer or more codewords to the UE in the PDCCH mode and the PDCCH-less mode. For clarity, much of the description below assumes that either one or two codewords may be sent in the PDCCH mode and only one codeword may be sent in the PDCCH-less mode.”<br/>[0033]</p> <p>“A format 330 includes eight bits for CQI information and two bits for ACK information. One ACK bit may be assigned to a first codeword and may be set to ‘1’ for an ACK to indicate that the first codeword is decoded correctly or to ‘0’ for a NAK to indicate that the first codeword is decoded in error. The other ACK bit may be assigned to a second codeword and may be set to ‘1’ for an ACK to indicate that the second codeword is decoded correctly or to ‘0’ for a NAK to indicate that the second codeword is decoded in error. The 10 total bits for both CQI and ACK information may be jointly encoded with a (24, 10) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”<br/>[0038]</p> |
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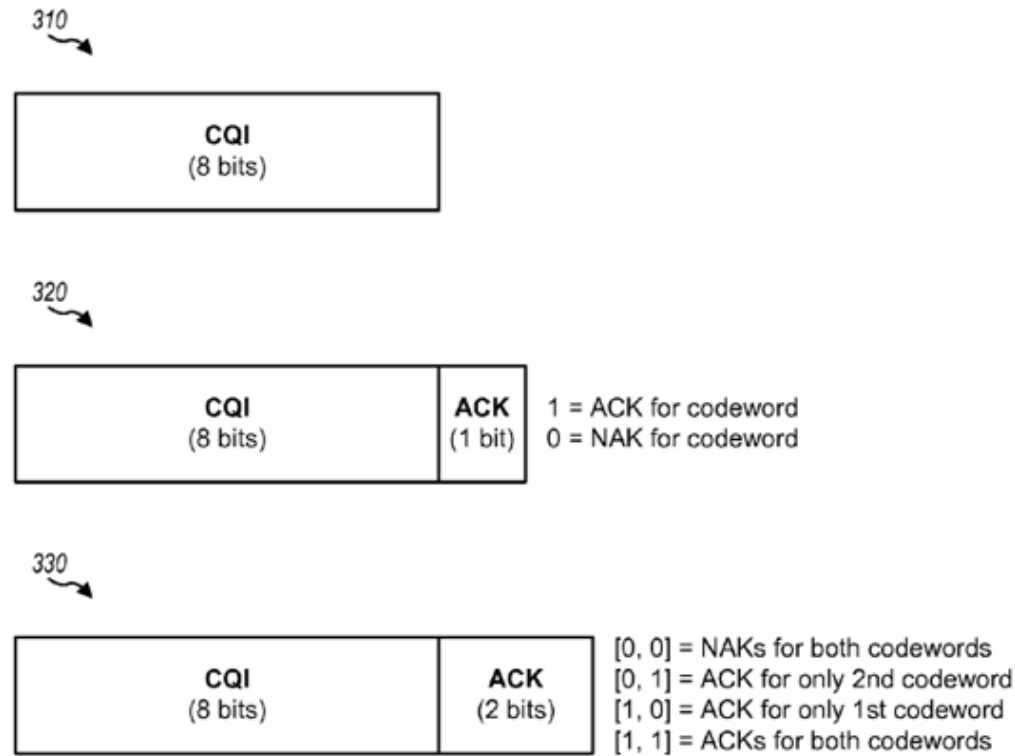


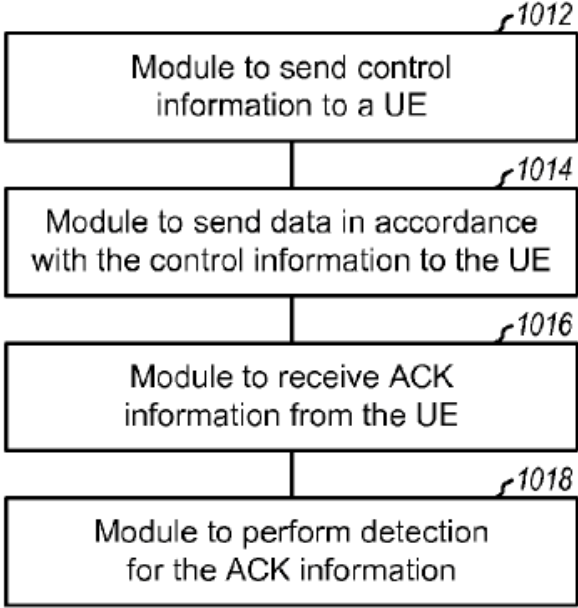
**FIG. 3**

“In scenario 3, the UE is scheduled for transmission on the downlink, and the eNB sends control information allocating one or two codewords on the PDCCH to the UE. However, the UE incorrectly decodes the PDCCH and misses the control information. The UE is not aware of the downlink transmission and thus transmits only CQI information using format 310 and the (24, 8) code. The eNB expects to receive both CQI and ACK information with the (24, 9) or (24, 10) code. Scenario 3 is an error scenario that may be handled as described below.”

[0061]

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|                                                                                                                                                                                                                                                                                                                       |  <p style="text-align: center;"><b>FIG. 10</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>1[b] after the user equipment receives the downlink sub-frame which carries the downlink control information, the data is received from the downlink sub-frame which transmits the data after this downlink sub-frame, and the confirmation information of receiving the data is fed back together with uplink</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>“As shown in FIG. 2, the UE may transmit only CQI information, or only ACK information, or both CQI and ACK information, or neither in any given subframe. The UE may send only CQI information on the PUCCH at a predetermined time frequency location, which may be assigned to the UE by the eNB. The UE may send only ACK information at a variable time frequency location, which may be determined based on an identifier (ID) of a downlink virtual resource block (VRB) used to send data to the UE or an ID of a PDCCH used to send control information to the UE. The UE may send both CQI</p> |

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| <p>data to the eNodeB through a physical uplink shared channel through an uplink sub-frame;</p> | <p>and ACK information either (i) on the PUCCH at the time frequency location assigned for CQI information, if data is not sent on the uplink, or (ii) on the PUSCH along with data sent on the uplink. For clarity, much of the description below assumes that both CQI and ACK information is sent on the PUCCH or PUSCH.”<br/>[0032]</p> <p>“In one design, eNB 110 may send one or two codewords to UE 120 in the PDCCH mode and may convey the number of codewords in the control information sent on the PDCCH. The eNB may send each codeword separately with HARQ. The UE may decode each codeword separately and may send ACK information for one or two codewords received from the eNB as described below. In one design, the eNB may send one codeword at a time to the UE in the PDCCH-less mode. In other designs, the eNB may send fewer or more codewords to the UE in the PDCCH mode and the PDCCH-less mode. For clarity, much of the description below assumes that either one or two codewords may be sent in the PDCCH mode and only one codeword may be sent in the PDCCH-less mode.”<br/>[0033]</p> |
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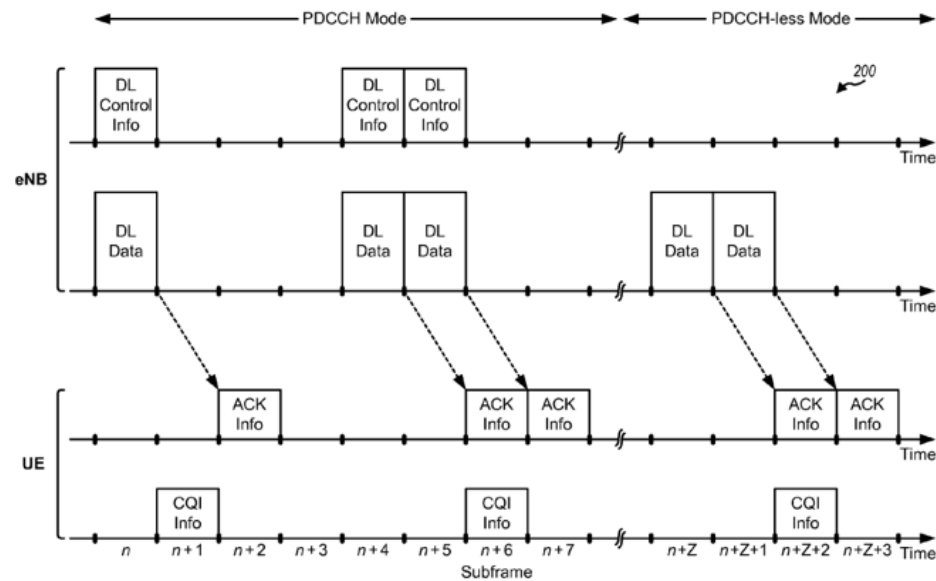


FIG. 2

“FIG. 3 shows three formats for CQI and ACK information with a variable size. A format 310 includes eight bits for CQI information and no bits for ACK information. The eight bits for CQI information may be encoded with a (24, 8) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”

[0036]

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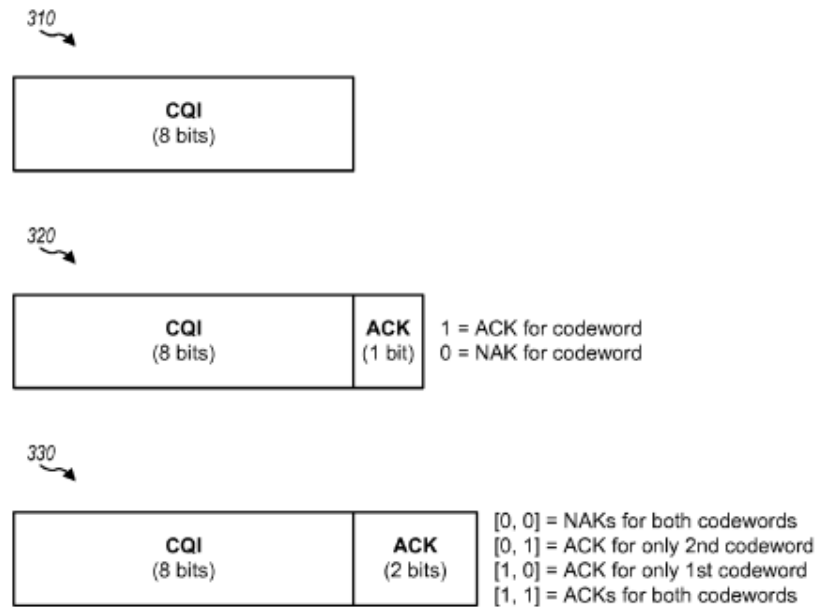


**FIG. 3**

“A format 320 includes eight bits for CQI information and one bit for ACK information. The ACK bit may be set to ‘1’ for an ACK to indicate that a codeword is decoded correctly or to ‘0’ for a NAK to indicate that the codeword is decoded in error. The nine total bits for both CQI and ACK information may be jointly encoded with a (24, 9) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”

[0037]

“A format 330 includes eight bits for CQI information and two bits for ACK information. One ACK bit may be assigned to a first codeword and may be set to ‘1’ for an ACK to indicate that the first codeword is decoded correctly or to ‘0’ for a NAK to indicate that the first codeword is decoded in error. The other ACK bit may be assigned to a second codeword and may be set to ‘1’ for an ACK to indicate that the second codeword is decoded correctly or to ‘0’ for a NAK to indicate that the second

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>codeword is decoded in error. The 10 total bits for both CQI and ACK information may be jointly encoded with a (24, 10) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.” [0038]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>1[c] wherein, in a situation that the user equipment feeds back a plurality of groups of the confirmation information, an amount of the confirmation information fed back in each group is equal to a maximum number of codeword streams in this downlink sub-frame, and respective confirmation information in each group corresponds to the confirmation information of the codeword stream of a corresponding downlink sub-frame; in the situation that the number of codeword streams of the downlink sub-frames is smaller than the maximum number of the codeword streams of the downlink sub-frame, the user equipment feeds back the confirmation information of the number of the maximum codeword streams, wherein</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff’s infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>“As shown in FIG. 2, the UE may transmit only CQI information, or only ACK information, or both CQI and ACK information, or neither in any given subframe. The UE may send only CQI information on the PUCCH at a predetermined time frequency location, which may be assigned to the UE by the eNB. The UE may send only ACK information at a variable time frequency location, which may be determined based on an identifier (ID) of a downlink virtual resource block (VRB) used to send data to the UE or an ID of a PDCCH used to send control information to the UE. The UE may send both CQI and ACK information either (i) on the PUCCH at the time frequency location assigned for CQI information, if data is not sent on the uplink, or (ii) on the PUSCH along with data sent on the uplink. For clarity, much of the description below assumes that both CQI and ACK information is sent on the PUCCH or PUSCH.” [0032]</p> <p>“In one design, eNB 110 may send one or two codewords to UE 120 in the PDCCH mode and may convey the number of codewords in the control information sent on the PDCCH. The eNB may send each codeword separately with HARQ. The UE may decode each codeword separately and may send ACK information for one or two codewords received from the eNB as described below. In one design, the eNB may send one codeword at a time to the UE in the PDCCH-less mode. In other designs, the eNB may send fewer or more codewords to the UE in the PDCCH mode and the PDCCH-less mode. For clarity, much of the description below assumes that either one or two codewords may be sent in the PDCCH mode and only one codeword may be sent in the PDCCH-less mode.” [0033]</p> |

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confirmation information without a corresponding codeword stream is set as a predefined fixed value; when the user equipment fails to detect the physical downlink control channel corresponding to the transmitted data in the sub-frame which transmits the data, the user equipment feeds back the negative acknowledgement message as the confirmation information of each codeword stream in a group corresponding to this downlink sub-frame.

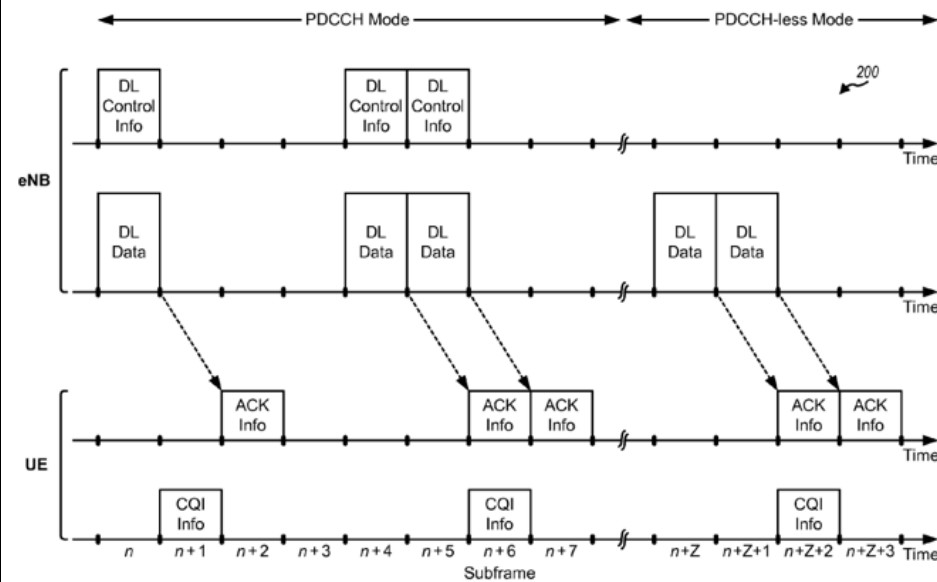


FIG. 2

“FIG. 3 shows three formats for CQI and ACK information with a variable size. A format 310 includes eight bits for CQI information and no bits for ACK information. The eight bits for CQI information may be encoded with a (24, 8) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”

[0036]

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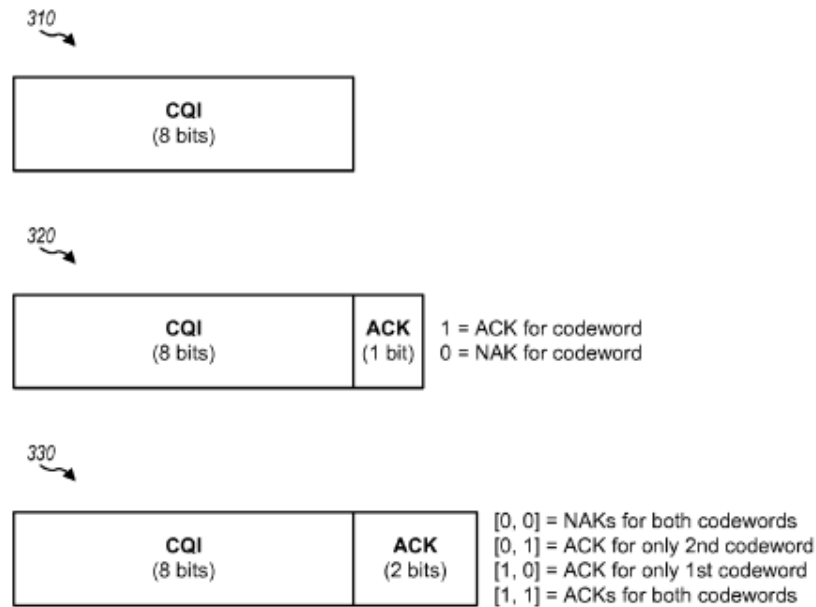


**FIG. 3**

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[0037]

“A format 330 includes eight bits for CQI information and two bits for ACK information. One ACK bit may be assigned to a first codeword and may be set to ‘1’ for an ACK to indicate that the first codeword is decoded correctly or to ‘0’ for a NAK to indicate that the first codeword is decoded in error. The other ACK bit may be assigned to a second codeword and may be set to ‘1’ for an ACK to indicate that the second codeword is decoded correctly or to ‘0’ for a NAK to indicate that the second

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|  | <p>codeword is decoded in error. The 10 total bits for both CQI and ACK information may be jointly encoded with a (24, 10) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.”<br/>[0038]</p> <p>“For scenario 1, the eNB does not transmit an assignment for the UE on the PDCCH. The UE may send [0, 0] for the ACK information with format 610, 620 or 630.”<br/>[0092]</p> <p>“For scenario 2, the eNB transmits an assignment for the UE on the PDCCH and the UE correctly decodes the PDCCH. If only the first codeword is allocated, then the UE may send [x, 1] for the ACK information, where x=1 if the first codeword is decoded correctly and x=0 if the first codeword is decoded in error. This distinguishes a NAK for the first codeword (which is [0, 1]) from the case in which the UE misses the PDCCH (which is [0, 0]). If only the second codeword is allocated, then the UE may send [1, x] for the ACK information, where x=1 if the second codeword is decoded correctly and x=0 if the second codeword is decoded in error. This distinguishes a NAK for the second codeword (which is [1, 0]) from the case in which the UE misses the PDCCH (which is [0, 0]). If two codewords are allocated, then the UE may send [0, 1], [1, 0] or [1, 1] for the ACK information with format 610 or 620 and may send [0, 0], [0, 1], [1, 0] or [1, 1] for the ACK information with format 630.”<br/>[0093]</p> <p>“For scenario 3, the eNB transmits an assignment for the UE on the PDCCH but the UE misses the PDCCH. The UE may then send [0, 0] for the ACK information with format 610, 620 or 630.”<br/>[0094]</p> <p>“FIG. 7 shows a design of a process 700 performed by the eNB to receive ACK information with a fixed number of bits. The eNB may perform process 700 in each subframe in which data might be sent to the UE. The eNB may initially determine whether the UE is scheduled for downlink transmission (block 712). If the answer is ‘No’, then the eNB may detect for only [0, 0] for no ACK information (block 718). Blocks 712 and 718 cover scenario 1 described above.”<br/>[0095]</p> |
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# EXHIBIT C1

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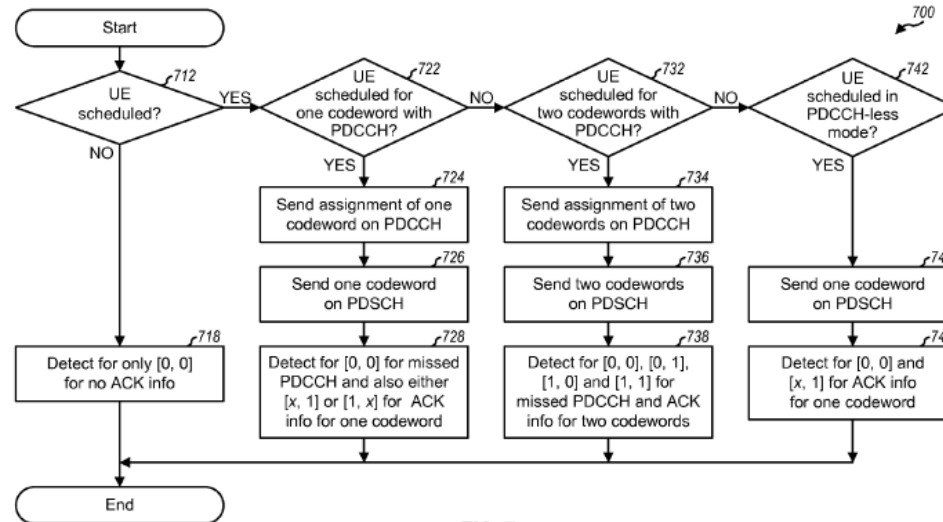


FIG. 7

“FIG. 8 shows a design of a process 800 performed by the UE to send ACK information. The UE may perform process 800 in each subframe in which data might be sent to the UE. The UE may initially determine whether the UE is operating in the PDCCH-less mode (block 812). If the answer is ‘Yes’, then the UE may blindly decode the PDSCH based on preconfigured parameters for one codeword (block 814). The UE may then send [x, 1] for ACK information for one codeword (block 816). Blocks 812 to 816 cover scenario 4 described above.”

[0099]

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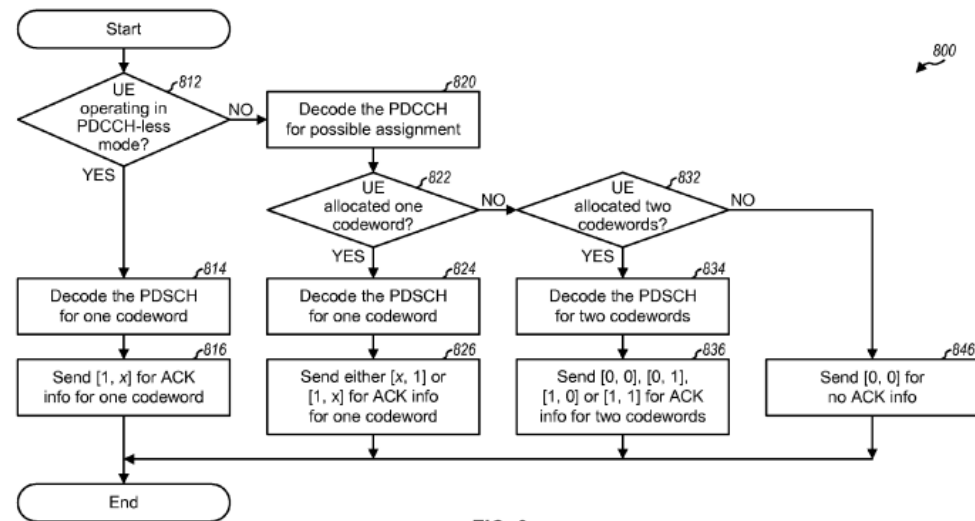


FIG. 8

“If the answer is ‘No’ for block 812, then the UE may decode the PDCCH for a possible assignment for the UE (block 820). The UE may then determine whether an assignment of one codeword has been received (block 822). If the answer is ‘Yes’, then the UE may decode the PDSCH for one codeword (block 824). The UE may then send [x, 1] or [1, x] for ACK information for one codeword (block 826). If the answer is ‘No’ for block 822, then the UE may determine whether an assignment of two codewords has been received (block 832). If the answer is ‘Yes’, then the UE may decode the PDSCH for two codewords (block 834). The UE may then send [0, 0], [0, 1], [1, 0] or [1, 1] for ACK information for two codewords (block 836). Blocks 820 to 836 cover scenario 2 described above.” [0100]

“In another design, the ACK information may have a fixed size, e.g., as shown in FIG. 6. The eNB may perform detection for the ACK information based on a single block code (e.g., the (24, 10) code) for both the first and second hypotheses. The eNB may obtain a fixed number of bits (e.g., two bits) for the ACK information for both hypotheses and regardless of the number of codewords sent to the UE. If two codewords are sent, then the two bits may be defined based on any of the formats shown in Table 2 or some other format. If one codeword is sent, then the two bits may be defined based on the format

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|  | <p>shown in Table 3 or some other format. One 2-bit value may be used to indicate that the control information is missed by the UE. The remaining 2-bit values may be used to convey the decoding status of one or two codewords. One or more values for ACK information may also be sent using one or more values for CQI information.”</p> <p>[0105]</p> <p>“In another design, the ACK information may have a fixed size, e.g., as shown in FIG. 6. The UE may generate a fixed number of bits for the ACK information regardless of whether or not the control information is received and regardless of the number of codewords received. The UE may generate two bits for the ACK information, set the two bits to a first value (e.g., [0, 0]) if the control information is not received, and set the two bits to second, third or fourth value if the control information is received. The UE may select the second, third or fourth value for the two bits based on whether one or two codewords are received and decoding results for the one or two codewords.”</p> <p>[0110]</p> |
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|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                                                                                             | <div style="text-align: center;">610</div> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">CQI<br/>(8 bits)</td><td style="text-align: center;">ACK<br/>(2 bits)</td></tr> </table> <div style="margin-left: 150px;"> <p>[0, 0] = Missed PDCCH<br/>         [0, 1] = ACKs for both codewords<br/>         [1, 0] = ACK for only 1st codeword<br/>         [1, 1] = NAKs for both codewords</p> </div> <div style="text-align: center;">620</div> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">CQI<br/>(8 bits)</td><td style="text-align: center;">ACK<br/>(2 bits)</td></tr> </table> <div style="margin-left: 150px;"> <p>[0, 0] = Missed PDCCH<br/>         [0, 1] = ACKs for both codewords<br/>         [1, 0] = ACK for only 2nd codeword<br/>         [1, 1] = NAKs for both codewords</p> </div> <div style="text-align: center;">630</div> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">CQI<br/>(8 bits)</td><td style="text-align: center;">ACK<br/>(2 bits)</td></tr> </table> <div style="margin-left: 150px;"> <p>[0, 0] = Missed PDCCH<br/>         [0, 1] = ACK for only 2nd codeword<br/>         [1, 0] = ACK for only 1st codeword<br/>         [1, 1] = ACKs for both codewords</p> </div> <div style="text-align: center;">640</div> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">CQI<br/>(8 bits)</td><td style="text-align: center;">ACK<br/>(2 bits)</td></tr> </table> <div style="margin-left: 150px;"> <p>[0, 0] = Missed PDCCH<br/>         [x, 1] = ACK/NAK for 1st codeword<br/>         [1, x] = ACK/NAK for 2nd codeword<br/>         x = 1 for ACK and x = 0 for NAK</p> </div> <p style="text-align: center;"><b>FIG. 6</b></p> | CQI<br>(8 bits) | ACK<br>(2 bits) | CQI<br>(8 bits) | ACK<br>(2 bits) | CQI<br>(8 bits) | ACK<br>(2 bits) | CQI<br>(8 bits) | ACK<br>(2 bits) |
| CQI<br>(8 bits)                                                                                             | ACK<br>(2 bits)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                 |                 |                 |                 |                 |                 |                 |
| CQI<br>(8 bits)                                                                                             | ACK<br>(2 bits)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                 |                 |                 |                 |                 |                 |                 |
| CQI<br>(8 bits)                                                                                             | ACK<br>(2 bits)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                 |                 |                 |                 |                 |                 |                 |
| CQI<br>(8 bits)                                                                                             | ACK<br>(2 bits)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                 |                 |                 |                 |                 |                 |                 |
| <p>1[d] in the situation that the number of codeword streams of the downlink sub-frames is smaller than</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                 |                 |                 |                 |                 |                 |                 |

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| the maximum number of the codeword streams of the downlink sub-frame, the user equipment feeds back the confirmation information of the number of the maximum codeword streams, wherein confirmation information without a corresponding codeword stream is set as a predefined fixed value;                                                        | <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The evidence above for claim 1[c]</p>                                                                                                                                                                                                                                                                                    |
| 1[e] when the user equipment fails to detect the physical downlink control channel corresponding to the transmitted data in the sub-frame which transmits the data, the user equipment feeds back the negative acknowledgement message as the confirmation information of each codeword stream in a group corresponding to this downlink sub-frame. | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The evidence above for claim 1[c]</p> |
| 2. The method according to claim 1, wherein the eNodeB uses a signaling in the downlink control information for representing an index of the uplink sub-                                                                                                                                                                                            | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p>                                          |

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| frame for transmitting uplink data in the situation that the number of the downlink sub-frames is smaller than the number of the uplink sub-frames to carry the number of the downlink sub-frames corresponding to the confirmation information which is fed back by the one uplink sub-frame.                                                                                                                                                                               | <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by Malladi, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p>                                                                                                                                                                                                                                                                                                                                                           |
| 3. The method according to claim 1, wherein the eNodeB determines a set of number values of all the downlink sub-frames corresponding to information which is fed back by the one uplink sub-frame according to a configuration pattern for the current number of downlink/uplink sub-frames, and selects corresponding number values from the set according to an amount of the data actually required to be transmitted to be carried in the downlink control information. | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p> |

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| <p>4. The method according to claim 1, wherein the eNodeB sends a control signaling associated with the allocation of the physical uplink shared channel on a first downlink sub-frame in the downlink sub-frames corresponding to the confirmation information fed back by the uplink sub-frame.</p>                                          | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p> |
| <p>5. The method according to claim 1, wherein in the uplink sub-frames fed back to the eNodeB, the user equipment, according to the order of serial numbers of the received downlink sub-frames which transmit the data, receives each downlink sub-frame which transmits the data and feeds back corresponding confirmation information.</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p> |

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| <p>6. The method according to claim 1, wherein in a situation that the user equipment fails to receive the data of in the sub-frame, the user equipment feeds back a negative acknowledgement message as the confirmation information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes the data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information.</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>“Techniques for sending and receiving acknowledgement (ACK) information in a wireless communication system are described. A base station sends control information and data to a user equipment (UE) and receives ACK information from the UE. The base station performs detection for the ACK information based on (i) a first hypothesis for the control information being missed by the UE and (ii) a second hypothesis for the control information being received correctly by the UE. In one design, the ACK information may have a variable size, and the base station may perform detection for the ACK information based on different block codes for the first and second hypotheses. In another design, the ACK information may have a fixed size, and the base station may perform detection for the ACK information based on a single block code and obtain a fixed number of bits for the ACK information for both hypotheses.”<br/>[Abstract]</p> <p>“Techniques for sending and receiving ACK information in a wireless communication system are described herein. A base station may send control information to a UE and may send data in accordance with the control information to the UE. The UE may jointly encode CQI and ACK information based on a block code and may send the CQI and ACK information to the base station. The base station may perform detection for the ACK information based on (i) a first hypothesis for the control information being missed by the UE and (ii) a second hypothesis for the control information being received correctly by the UE.”<br/>[0007]</p> <p>“FIG. 2 shows downlink (DL) transmission by eNB 110 and uplink (UL) transmission by UE 120. The transmission timeline may be partitioned into subframes, with each subframe having a predetermined duration, e.g., one millisecond (ms). The UE may periodically estimate the downlink channel quality</p> |
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for the eNB and may send CQI information to the eNB. The eNB may use the CQI information and/or other information to select the UE for downlink transmission and to select a suitable transport format (e.g., a modulation and coding scheme) for the UE. The eNB may process a transport block to obtain a corresponding codeword and may send a transmission for the codeword to the UE. The UE may process the transmission received from the eNB and may send an acknowledgement (ACK) if the codeword is decoded correctly or a negative acknowledgement (NAK) if the codeword is decoded in error. The eNB may send another transmission for the codeword if a NAK is received and may send a transmission for a new codeword if an ACK is received. FIG. 2 shows an example in which the ACK/NAK is delayed by two subframes. The ACK/NAK may also be delayed by some other amount.” [0030]

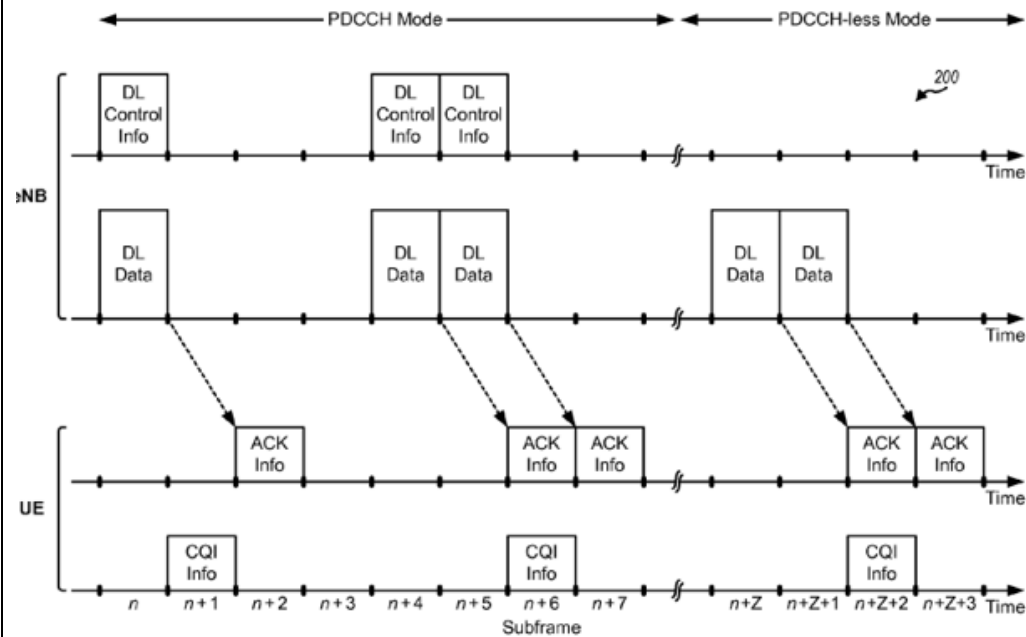


**FIG. 2**

# EXHIBIT C1

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|                                                                                                                                                                                                                                                                                                                          | <p>“A format 330 includes eight bits for CQI information and two bits for ACK information. One ACK bit may be assigned to a first codeword and may be set to ‘1’ for an ACK to indicate that the first codeword is decoded correctly or to ‘0’ for a NAK to indicate that the first codeword is decoded in error. The other ACK bit may be assigned to a second codeword and may be set to ‘1’ for an ACK to indicate that the second codeword is decoded correctly or to ‘0’ for a NAK to indicate that the second codeword is decoded in error. The 10 total bits for both CQI and ACK information may be jointly encoded with a (24, 10) code to obtain 24 code bits, which may be sent on the PUCCH or PUSCH.” [0038]</p> <p>“For scenario 1, the eNB does not transmit an assignment for the UE on the PDCCH. The UE may send [0, 0] for the ACK information with format 610, 620 or 630.” [0092]</p> <p>“For scenario 3, the eNB transmits an assignment for the UE on the PDCCH but the UE misses the PDCCH. The UE may then send [0, 0] for the ACK information with format 610, 620 or 630.” [0094]</p> |
| 7[pre] The method according to claim 6, wherein                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 7[a] in a situation that the data in the downlink sub-frame that transmits the data is sent as a single codeword stream, each piece of confirmation information in the uplink sub-frame fed back by the user equipment to the eNodeB corresponds to a codeword stream of one downlink sub-frame that transmits the data; | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff’s infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the ’881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and</p>                                                                                                                                                                         |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7[b] in a situation that the data in the downlink sub-frame that transmits the data is sent as multiple codeword streams, for one downlink sub-frame that transmits the data, the user equipment acquires the confirmation information corresponding to each codeword stream thereof, in a situation that any one or more pieces of confirmation information among the confirmation information acquired is the negative acknowledgement message, the user equipment sets the confirmation information of this downlink sub-frame as a negative acknowledgement; in a situation that all the confirmation information acquired is the acknowledgement message, the user equipment sets the confirmation information of this downlink sub-frame as an acknowledgement. | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p> |

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| <p>8. The method according to claim 1, wherein in a situation that the downlink sub-frames sent by the eNodeB to the user equipment includes special sub-frames which cannot transmit data, the user equipment does not consider the special sub-frames when feeding back the confirmation information.</p>                                                                                                                                         | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p> |
| <p>9[pre] A method for feeding back confirmation information on a physical uplink shared channel, wherein, when the confirmation information is fed back together with uplink data on the physical uplink shared channel, in a situation that a user equipment fails to detect a physical downlink control channel corresponding to transmitted data in a sub-frame transmitting data, the user equipment feeds back a negative acknowledgement</p> | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p>To the extent the preamble of claim 1 is found to be limiting, <i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| <p>message as confirmation information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information;</p> |                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>9[a] wherein in a situation that the user equipment feeds back a plurality of groups of the confirmation information, an amount of the confirmation information fed back in each group is equal to a maximum number of codeword streams in this downlink</p>                                                                                                                                                                                                                                                               | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1[c]</p> |

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### Invalidity of U.S. Patent No. 9,184,881 in View of U.S. Patent Publication No. US 2008/0253318 A1

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| sub-frame, and respective confirmation information in each group corresponds to the confirmation information of the codeword stream of a corresponding downlink sub-frame;                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                            |
| 9[b] in a situation that the number of the codeword streams of the downlink sub-frame is smaller than the maximum number of the codeword streams of the downlink sub-frame, the user equipment feeds back the confirmation information of the maximum number of the codeword streams, wherein confirmation information without a corresponding codeword stream is set as a predefined fixed value; | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1[d]</p> |
| 9[c] when the user equipment fails to detect the physical downlink control channel corresponding to the transmitted data in the sub-frame which transmits the data, the user equipment feeds back the negative                                                                                                                                                                                     | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 1[e]</p> |

# EXHIBIT C1

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| acknowledgement message as the confirmation information of each codeword stream in a group corresponding to this downlink sub-frame.                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 10[pre] The method according to claim 9, wherein                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 10[a] in a situation that the data in the downlink sub-frame that transmits the data is sent as a single codeword stream, each piece of confirmation information in the uplink sub-frame fed back by the user equipment to an eNodeB corresponds to a codeword stream of one downlink sub-frame that transmits the data; | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 7[a]</p>                                                                                                                                                                                                                                                                                                                                        |
| 10[b] in a situation that the data in the downlink sub-frame which transmits the data is sent as multiple codeword streams, for one downlink sub-frame that transmits the data, the user equipment acquires the confirmation information corresponding to each codeword stream thereof, in                               | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 7[b]</p> <p>To the extent that this limitation is not disclosed, either explicitly or inherently, by <i>Malladi</i>, this limitation is obvious in combination with the knowledge of one of skill in the art and/or it would have been obvious to one of skill in the art at the time of the '881 patent to combine this reference with any</p> |

**EXHIBIT C1**

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| <p>a situation that any one or more pieces of confirmation information among the confirmation information acquired is the negative acknowledgement message, the user equipment sets the confirmation information of this downlink sub-frame as a negative acknowledgement; in a situation that all the confirmation information acquired is the acknowledgement message, the user equipment sets the confirmation information of this downlink sub-frame as an acknowledgement.</p> | <p>of the other references in Appendix C as charted for this claim limitation. The motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from known problems and predictable solutions as embodied in these references, examples of which are discussed in the Cover Pleading.</p>                                                          |
| <p>11. The method according to claim 2, wherein in a situation that the user equipment fails to detect a physical downlink control channel corresponding to transmitted data in the sub-frame transmitting the data, or fails to receive the data thereof, the user equipment feeds back a negative acknowledgement message as the confirmation</p>                                                                                                                                 | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 6</p> |

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| information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes the data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information. |                                                                                                                                                                                                                                                                                                                                                                                         |
| 12. The method according to claim 3, wherein in a situation that the user equipment fails to detect a physical downlink control channel corresponding to transmitted data in the sub-frame transmitting the data, or fails to receive the data thereof, the user equipment feeds back a negative acknowledgement message                                                                                                                                                                           | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 6</p> |

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| as the confirmation information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes the data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information. |                                                                                                                                                                                                                                                                                                                                                                                         |
| 13. The method according to claim 4, wherein in a situation that the user equipment fails to detect a physical downlink control channel corresponding to transmitted data in the sub-frame transmitting the data, or fails to receive the data thereof, the user equipment feeds back a negative                                                                                                                                                                                                                       | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 6</p> |

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| acknowledgement message as the confirmation information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes the data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information. |                                                                                                                                                                                                                                                                                                                                                                                         |
| 14. The method according to claim 5, wherein in a situation that the user equipment fails to detect a physical downlink control channel corresponding to transmitted data in the sub-frame transmitting the data, or fails to receive the data thereof, the user equipment                                                                                                                                                                                                                                                                     | <p>The Court has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the Court. The support identified here for this limitation is responsive to Plaintiff's infringement contentions, which Defendants disagree with.</p> <p><i>Malladi</i> discloses this element. <i>See, e.g.,</i></p> <p>The support above for claim 6</p> |

## EXHIBIT C1

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| <p>feeds back a negative acknowledgement message as the confirmation information of this downlink sub-frame; in a situation that the user equipment detects the physical downlink control channel corresponding to the transmitted data in the sub-frame transmitting the data, the user equipment analyzes the data in this downlink sub-frame, and feeds back an acknowledgement message as the confirmation information in a situation that the analysis is successful, otherwise, the negative acknowledgement message is fed back as the confirmation information.</p> |  |
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