

### **EXHIBIT K-3**

#### **Summary of Invalidity Analysis of U.S. Patent No. 10,009,161 (“’161 Patent”) in view of WO2014/194681A1 to Xia et al. (“Xia 681”)**

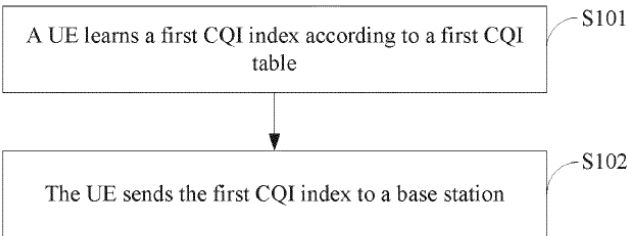
WO 2014/194681A1 to Xia (“Xia 681”) published on December 11, 2014, was filed on January 23, 2014, and claims priority to PCT/CN2013/077023 filed on June 8, 2013. Therefore, Xia 681 qualifies as prior art to the ’161 Patent under at least 35 U.S.C. § 102(a). As described in the following claim chart, at least under Pegasus’s apparent infringement theory, the asserted claims of the ’161 Patent are invalid as expressly and/or inherently anticipated by Xia 681.

To the extent that Xia 681 is found not to anticipate, expressly or inherently, one or more of the asserted claims of the ’161 Patent, at least under Pegasus’s apparent infringement theory, these claims are invalid as obvious in view of Xia 681 in view of the background knowledge and ordinary creativity of a person having ordinary skill in the art at the time of the alleged invention, or in combination with other prior art identified in the cover pleading, herein, or as disclosed in Defendants’ Invalidity Contentions and accompanying charts and appendices. A person of ordinary skill would have been motivated to combine Xia 681 and any other prior art references, including but not limited to the other prior art identified in the cover pleading or herein, with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.

Defendants reserve the right to amend or supplement this invalidity chart at a later date.

## 1. Claim 1

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                      | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1[pre]                                                  | A method for transmitting channel state information by a User Equipment (UE), the method comprising: | <p>To the extent the preamble is limiting, at least under Pegasus's apparent infringement theory, Xia 681 discloses a method for transmitting channel state information by a User Equipment (UE). For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                                         |  |  <pre> graph TD     S101[A UE learns a first CQI index according to a first CQI table] --&gt; S102[The UE sends the first CQI index to a base station] </pre> <p>FIG. 1</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second CQI table is a term of quadrature phase shift keying QPSK, and the at least one modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                         |                                                                                 | <p>integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[a]                                                    | receiving a reference signal for measuring channel quality from a base station; | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses receiving a reference signal for measuring channel quality from a base station. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|                                                         |  | <p>notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not limited to. Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                                                         |                                                                                                                          | <p>hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[b]                                                    | measuring the channel quality based on the reference signal, and selecting a channel quality indicator (CQI) index value | At least under Pegasus's apparent infringement theory, Xia 681 discloses measuring the channel quality based on the reference signal, and selecting a channel quality indicator (CQI) index value from a predetermined CQI index table including CQI index values for 256 quadrature amplitude modulation (QAM) modulation, based on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|                                                         | <p>from a predetermined CQI index table including CQI index values for 256 quadrature amplitude modulation (QAM) modulation, based on the measurement result of the channel quality; and</p> | <p>the measurement result of the channel quality. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not limited to. Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>The first CQI table includes items with a modulation mode higher than 64QAM. For example, the items including the modulation method higher than 64QAM may be one item or multiple items. For example, the modulation mode of the first CQI table that</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                                         |  | <p>is higher than 64QAM may be 128QAM and/or 256QAM. If the first CQI table includes only one modulation mode, the modulation mode of the item may be Is a modulation mode of 128QAM, 256QAM, or other modulation mode with a higher modulation mode. If the first CQI table includes multiple modulation mode items, the multiple modulation modes included in the first CQI table may be Any one of the 128QAM, 256QAM, or other modulation methods with higher modulation schemes may be any of a variety of modulation schemes such as 128QAM, 256QAM, or other modulation schemes with higher modulation schemes. Xia 681 at 93.</p> <p>In a first aspect, a CQI notification method is provided, including: obtaining a first CQI number according to the obtained first CQI table; and sending a first CQI number to the base station so that the base station determines a first modulation and coding scheme MCS number according to the first CQI number; the first CQI table includes: an item whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; in the second CQI table at least one modulation mode is an item of quadrature phase shift keying QPSK, and the item of the at least one modulation mode being QPSK includes a combination of a term consisting of at least one of the second CQI tables and a modulation mode of QPSK a combination other than the combination, the first combination being N consecutive items having the largest CQI number corresponding to QPSK in the second CQI table, wherein N is equal to 3 or the N is a positive integer less than 4 or the N is A positive integer; and/or at least one of the second CQI tables is a 16QAM entry; wherein the modulation in the entries in the second CQI table includes only QPSK, 16 QAM, and 64QAM. Xia 681 at 47.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to</p> |

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|                                                         |  | <p>Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second CQI table is a term of quadrature phase shift keying QPSK, and the at least one</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                                                         |                                                                                                    | <p>modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[c]                                                    | transmitting channel state information including the selected CQI index value to the base station, | At least under Pegasus's apparent infringement theory, Xia 681 discloses transmitting channel state information including the selected CQI index value to the base station. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |  | <p>S102: The UE sends a first CQ I number to the base station. The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQI number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of transmitting the MCS number to notify the UE, thereby improving system performance. Xia 681 at 101. Xia 681 at 101.</p> <p>In a first aspect, a CQI notification method is provided, including: obtaining a first CQI number according to the obtained first CQI table; and sending a first CQI number to the base station So that the base station determines a first modulation and coding scheme MCS number according to the first CQI number; the first CQI table includes: an item whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; in the second CQI table At least one modulation mode is an item of quadrature phase shift keying QPSK, and the item of the at least one modulation mode being QPSK includes a combination of a term consisting of at least one of the second CQI tables and a modulation mode of QPSK a combination other than the combination, the first combination being N consecutive items having the largest CQI number corresponding to QPSK in the second CQI table, wherein N is equal to 3 or the N is a positive integer less than 4 or the N is A positive integer; and/or at least one of the second CQI tables is a 16QAM entry; wherein the modulation in the entries in the second CQI table includes only QPSK, 16 QAM, and 64QAM. Xia 681 at 47.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                         |  | <p>Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second CQI table is a term of quadrature phase shift keying QPSK, and the at least one</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Claim Language                                          |                                                                                                                                         | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                         |                                                                                                                                         | <p>modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[d]                                                    | wherein: the CQI index table includes three CQI index values for QPSK modulation, three CQI index values for 16QAM modulation, five CQI | At least under Pegasus's apparent infringement theory, Xia 681 discloses that the CQI index table includes three CQI index values for QPSK modulation, three CQI index values for 16QAM modulation, five CQI index values for 64QAM modulation, and four CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

index values for 64QAM modulation, and four CQI index values for 256QAM modulation;

**Exemplary Citations to Xia 681**

[0148] Exemplarily, it is assumed that: in the first CQI table, there are three entries in which a modulation scheme is QPSK, and corresponding CQI indexes are 1-3; there are three entries in which a modulation scheme is 16QAM, and corresponding CQI indexes are 4-6; there are five entries in which a modulation scheme is 64QAM, and corresponding CQI indexes are 7-11; and since a value range of CQI index in the first CQI table is 0-15, in the first CQI table, there are four entries in which a modulation scheme is higher than 64QAM, and corresponding CQI indexes are 12-15, where a smallest CQI index among the entries is 12. Specifically, as shown in Table 1, the entry that is in the first CQI table and is corresponding to the CQI index 12 is the entry that is in the second CQI table and is corresponding to the CQI index 15.

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Claim Language                                          |                                                                                                                                                            | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |                                                                                                                                                            | <p>10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[e]                                                    | one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum | At least under Pegasus's apparent infringement theory, Xia 681 discloses that one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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**Claim Language**

transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:

**Table 1**

| CQI index | Modulation scheme | Code rate $\times$ 1024 | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 0         | Out of range      |                         |                     |
| 1         | QPSK              | 78                      | 0.1523              |
| 2         | QPSK              | 120                     | 0.2344              |
| 3         | QPSK              | 193                     | 0.3770              |
| 4         | QPSK              | 308                     | 0.6016              |
| 5         | QPSK              | 449                     | 0.8770              |
| 6         | QPSK              | 602                     | 1.1758              |

(continued)

| CQI index | Modulation scheme | Code rate $\times$ 1024 | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 7         | 16QAM             | 378                     | 1.4766              |
| 8         | 16QAM             | 490                     | 1.9141              |
| 9         | 16QAM             | 616                     | 2.4063              |
| 10        | 64QAM             | 466                     | 2.7305              |
| 11        | 64QAM             | 567                     | 3.3223              |
| 12        | 64QAM             | 666                     | 3.9023              |
| 13        | 64QAM             | 772                     | 4.5234              |
| 14        | 64QAM             | 873                     | 5.1152              |
| 15        | 64QAM             | 948                     | 5.5547              |

[0144] Further, in the foregoing six types of first CQI tables, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries in which a modulation scheme is higher than 64QAM may be equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM.

[0010] With reference to the first aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                         |  | <p>that are in the first CQI table and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0052] With reference to the fourth aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0068] With reference to any one of the foregoing ten possible implementations, in an eleventh possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                         |  | <p>table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>12. The method according to claim 10 or 11, wherein the spectrum efficiency 5.5547 in an entry that is corresponding to CQI index 12 and 256 QAM in the first CQI table is equal to a spectrum efficiency in an entry that is corresponding to CQI index 15 and 64QAM in the second CQI table.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
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| Claim Language                                          |                                                                                                                                                                                                                                                              | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
|                                                         |                                                                                                                                                                                                                                                              | prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 1[f]                                                    | another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:<br><br><div>表 6-3</div> <table><tr><th>第一CQI表格中的CQI编号</th><th>第二CQI表格中的CQI编号</th><th>调制方式modulation</th><th>编码速率×1024code rate×1024</th><th>频谱效率efficiency</th></tr><tr><td>0</td><td>0</td><td colspan="3">out of range</td></tr><tr><td>1</td><td>1</td><td>QPSK</td><td>78</td><td>0.1523</td></tr><tr><td>2</td><td>3</td><td>QPSK</td><td>193</td><td>0.3770</td></tr><tr><td>3</td><td>5</td><td>QPSK</td><td>449</td><td>0.8770</td></tr><tr><td>4</td><td>7</td><td>16QAM</td><td>378</td><td>1.4766</td></tr><tr><td>5</td><td>8</td><td>16QAM</td><td>490</td><td>1.9141</td></tr><tr><td>6</td><td>9</td><td>16QAM</td><td>616</td><td>2.4063</td></tr><tr><td>7</td><td>10</td><td>64QAM</td><td>466</td><td>2.7305</td></tr><tr><td>8</td><td>11</td><td>64QAM</td><td>567</td><td>3.3223</td></tr><tr><td>9</td><td>12</td><td>64QAM</td><td>666</td><td>3.9023</td></tr><tr><td>10</td><td>13</td><td>64QAM</td><td>772</td><td>4.5234</td></tr><tr><td>11</td><td>14</td><td>64QAM</td><td>873</td><td>5.1152</td></tr><tr><td>12</td><td>15</td><td>256QAM</td><td>711</td><td>5.5547</td></tr><tr><td>13</td><td>-</td><td>256QAM</td><td>790</td><td>6.1719</td></tr><tr><td>14</td><td>-</td><td>256QAM</td><td>869</td><td>6.7891</td></tr><tr><td>15</td><td>-</td><td>256QAM</td><td>948</td><td>7.4063</td></tr></table> |                         |                | 第一CQI表格中的CQI编号 | 第二CQI表格中的CQI编号 | 调制方式modulation | 编码速率×1024code rate×1024 | 频谱效率efficiency | 0 | 0 | out of range |  |  | 1 | 1 | QPSK | 78 | 0.1523 | 2 | 3 | QPSK | 193 | 0.3770 | 3 | 5 | QPSK | 449 | 0.8770 | 4 | 7 | 16QAM | 378 | 1.4766 | 5 | 8 | 16QAM | 490 | 1.9141 | 6 | 9 | 16QAM | 616 | 2.4063 | 7 | 10 | 64QAM | 466 | 2.7305 | 8 | 11 | 64QAM | 567 | 3.3223 | 9 | 12 | 64QAM | 666 | 3.9023 | 10 | 13 | 64QAM | 772 | 4.5234 | 11 | 14 | 64QAM | 873 | 5.1152 | 12 | 15 | 256QAM | 711 | 5.5547 | 13 | - | 256QAM | 790 | 6.1719 | 14 | - | 256QAM | 869 | 6.7891 | 15 | - | 256QAM | 948 | 7.4063 |
| 第一CQI表格中的CQI编号                                          | 第二CQI表格中的CQI编号                                                                                                                                                                                                                                               | 调制方式modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 编码速率×1024code rate×1024 | 频谱效率efficiency |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 0                                                       | 0                                                                                                                                                                                                                                                            | out of range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 1                                                       | 1                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 78                      | 0.1523         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 2                                                       | 3                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 193                     | 0.3770         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 3                                                       | 5                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 449                     | 0.8770         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 4                                                       | 7                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 378                     | 1.4766         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 5                                                       | 8                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 490                     | 1.9141         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 6                                                       | 9                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 616                     | 2.4063         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 7                                                       | 10                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 466                     | 2.7305         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 8                                                       | 11                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 567                     | 3.3223         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 9                                                       | 12                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 666                     | 3.9023         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 10                                                      | 13                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 772                     | 4.5234         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 11                                                      | 14                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 873                     | 5.1152         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 12                                                      | 15                                                                                                                                                                                                                                                           | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 711                     | 5.5547         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 13                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 790                     | 6.1719         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 14                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 869                     | 6.7891         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 15                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 948                     | 7.4063         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                         |  | <p>[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.</p> <p>[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:</p> |

# Invalidity of U.S. Patent 10,009,161 in view of Xia 681

## Claim Language

## Exemplary Citations to Xia 681

**Table 1**

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 0         | Out of range      |                         |                     |
| 1         | QPSK              | 78                      | 0.1523              |
| 2         | QPSK              | 120                     | 0.2344              |
| 3         | QPSK              | 193                     | 0.3770              |
| 4         | QPSK              | 308                     | 0.6016              |
| 5         | QPSK              | 449                     | 0.8770              |
| 6         | QPSK              | 602                     | 1.1758              |

(continued)

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 7         | 16QAM             | 378                     | 1.4766              |
| 8         | 16QAM             | 490                     | 1.9141              |
| 9         | 16QAM             | 616                     | 2.4063              |
| 10        | 64QAM             | 466                     | 2.7305              |
| 11        | 64QAM             | 567                     | 3.3223              |
| 12        | 64QAM             | 666                     | 3.9023              |
| 13        | 64QAM             | 772                     | 4.5234              |
| 14        | 64QAM             | 873                     | 5.1152              |
| 15        | 64QAM             | 948                     | 5.5547              |

[0012] With reference to the first aspect, in a seventh possible implementation, spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression of spectral efficiencies arranged in ascending order; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                         |  | <p>arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2; a spectral efficiency in an entry in which a corresponding CQI index is smallest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; and a spectral efficiency in an entry in which a corresponding CQI index is greatest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is: <math>\frac{4}{3}</math> times the spectral efficiency in the entry in which the corresponding CQI index is greatest among all the entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 8 times a maximum code rate of a terminal, where the maximum code rate is a positive real number less than 1; or 7.4063; or 7.432.</p> <p>[0069] With reference to any one of the foregoing eleven possible implementations, in a twelfth possible implementation, a value range of a CQI index in the first CQI table acquired by the acquiring module is the same as a value range of a CQI index in the second CQI table.</p> <p>13. The method according to claim 11 or 12, wherein a spectral efficiency in an entry in which a corresponding CQI index is highest among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM is: <math>\frac{4}{3}</math> times a spectral efficiency in an entry in which a corresponding CQI index is highest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 7.4063.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |                                                                                                                                                | anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results. |
| 1[g]                                                    | wherein: the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024,” | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                       |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                   | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[h]                                                    | the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024,” and | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                                | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                                | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 1[i]                                                    | a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024. " | At least under Pegasus's apparent infringement theory, Xia 681 discloses that a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024." For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |  | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |

## 2. Claim 2

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                   |                                                                                                                                                                        |
|---------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                   | Exemplary Citations to Xia 681                                                                                                                                         |
| 2                                                       | The method of claim 1, wherein the five CQI index | At least under Pegasus's apparent infringement theory, Xia 681 discloses wherein the five CQI index values for 64QAM modulation, respectively, to have same difference |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

values for 64QAM modulation, respectively, to have same difference within a predetermined error rate, as shown in a table below

| CQI index | modulation | code rate $\times 1024$ | efficiency |
|-----------|------------|-------------------------|------------|
| 0         |            | out of range            |            |
| 1         | QPSK       | 78                      | 0.1523     |
| 2         | QPSK       | 193                     | 0.3770     |
| 3         | QPSK       | 449                     | 0.8770     |
| 4         | 16QAM      | 378                     | 1.4766     |
| 5         | 16QAM      | 490                     | 1.9141     |
| 6         | 16QAM      | 616                     | 2.4063     |
| 7         | 64QAM      | 466                     | 2.7305     |
| 8         | 64QAM      | 567                     | 3.3223     |
| 9         | 64QAM      | 666                     | 3.9023     |
| 10        | 64QAM      | 772                     | 4.5234     |
| 11        | 64QAM      | 873                     | 5.1152     |

**Exemplary Citations to Xia 681**

within a predetermined error rate, as shown in a table below. For example, Xia 681 discloses this limitation based on the following exemplary citations:

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率 $\times 1024$<br>code rate $\times 1024$ | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------------------------|--------------------|
| 0                  | 0                  | out of range       |                                               |                    |
| 1                  | 1                  | QPSK               | 78                                            | 0.1523             |
| 2                  | 3                  | QPSK               | 193                                           | 0.3770             |
| 3                  | 5                  | QPSK               | 449                                           | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                                           | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                                           | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                                           | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                                           | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                                           | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                                           | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                                           | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                                           | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                                           | 5.5547             |
| 13                 | -                  | 256QAM             | 790                                           | 6.1719             |
| 14                 | -                  | 256QAM             | 869                                           | 6.7891             |
| 15                 | -                  | 256QAM             | 948                                           | 7.4063             |

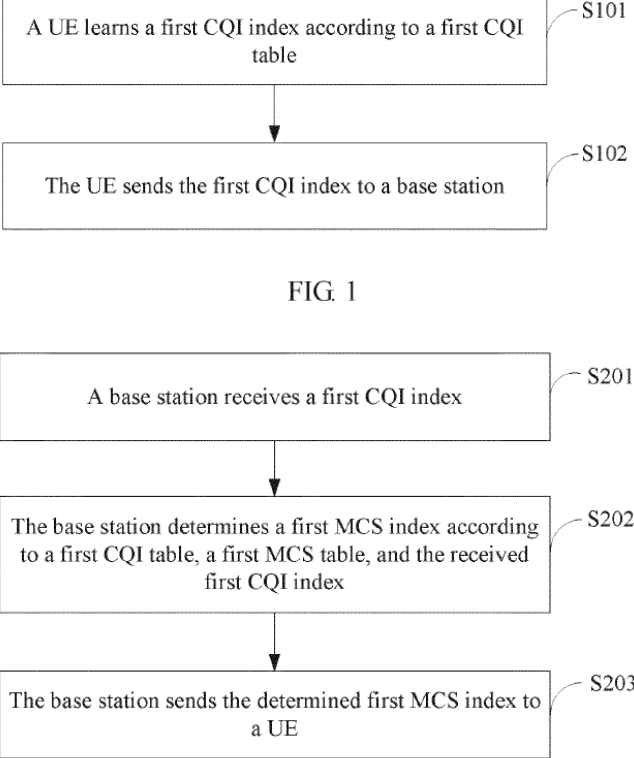
11. The method according to claim 10, wherein, the CQI indices 0 to 12 of the first CQI table correspond to CQI indices 0, 1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14 and 15 of a second CQI table; and each entry in the second CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency.

To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                         |  | knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results. |

### 3. Claim 3

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                            | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3[pre]                                                  | A method for receiving channel state information by a base station, the method comprising: | <p>To the extent the preamble is limiting, at least under Pegasus's apparent infringement theory, Xia 681 discloses method for receiving channel state information by a base station. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |  | <p>Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p>  <pre> graph TD     S101[A UE learns a first CQI index according to a first CQI table] --&gt; S102[The UE sends the first CQI index to a base station]     S201[A base station receives a first CQI index] --&gt; S202[The base station determines a first MCS index according to a first CQI table, a first MCS table, and the received first CQI index]     S202 --&gt; S203[The base station sends the determined first MCS index to a UE]   </pre> <p>FIG. 1</p> <p>FIG. 2</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                         |  | <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second CQI table is a term of quadrature phase shift keying QPSK, and the at least one modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Claim Language                                          |                                                            | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |                                                            | <p>modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p><i>See also</i> claim element 1[pre].</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p>                                                                                                                                                                                                                         |
| 3[a]                                                    | creating a reference signal for measuring channel quality; | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses creating a reference signal for measuring channel quality. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                         |  | <p>limited to Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Claim Language                                          |                                                                 | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                         |                                                                 | <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[b]                                                    | transmitting the reference signal to a User Equipment (UE); and | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses transmitting the reference signal to a User Equipment (UE). For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                         |  | <p>least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not limited to Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Claim Language                                          |                                                                                                                                                                    | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                         |                                                                                                                                                                    | <p>Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[c]                                                    | receiving channel state information including a channel quality indicator (CQI) index selected from a predetermined CQI index table including CQI index values for | At least under Pegasus's apparent infringement theory, Xia 681 discloses receiving channel state information including a channel quality indicator (CQI) index selected from a predetermined CQI index table including CQI index values for 256 quadrature amplitude modulation (QAM) modulation, based on a measurement result of the channel quality, from the User Equipment. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Claim Language                                          |                                                                                                                                             | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                         | <p>256 quadrature amplitude modulation (QAM) modulation, based on a measurement result of the channel quality, from the User Equipment,</p> | <p>In a first aspect, a CQI notification method is provided, including: obtaining a first CQI number according to the obtained first CQI table; and sending a first CQI number to the base station So that the base station determines a first modulation and coding scheme MCS number according to the first CQI number; the first CQI table includes: an item whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; in the second CQI table At least one modulation mode is an item of quadrature phase shift keying QPSK, and the item of the at least one modulation mode being QPSK includes a combination of a term consisting of at least one of the second CQI tables and a modulation mode of QPSK a combination other than the combination, the first combination being N consecutive items having the largest CQI number corresponding to QPSK in the second CQI table, wherein N is equal to 3 or the N is a positive integer less than 4 or the N is A positive integer; and/or at least one of the second CQI tables is a 16QAM entry; wherein the modulation in the entries in the second CQI table includes only QPSK, 16 QAM, and 64QAM. Xia 681 at 47.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |  | <p>CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>S102: The UE sends a first CQ I number to the base station. The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQI number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of transmitting the MCS number to notify the UE, thereby improving system performance. Xia 681 at 101. Xia 681 at 101.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Claim Language                                          |                                                                                                              | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                         |                                                                                                              | <p>CQI table is a term of quadrature phase shift keying QPSK, and the at least one modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[d]                                                    | wherein: the CQI index table includes three CQI index values for QPSK modulation, three CQI index values for | At least under Pegasus's apparent infringement theory, Xia 681 discloses that the CQI index table includes three CQI index values for QPSK modulation, three CQI index values for 16QAM modulation, five CQI index values for 64QAM modulation, and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Claim Language                                          |                                                                                                                | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                         | 16QAM modulation, five CQI index values for 64QAM modulation, and four CQI index values for 256QAM modulation; | <p>four CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>[0148] Exemplarily, it is assumed that: in the first CQI table, there are three entries in which a modulation scheme is QPSK, and corresponding CQI indexes are 1-3; there are three entries in which a modulation scheme is 16QAM, and corresponding CQI indexes are 4-6; there are five entries in which a modulation scheme is 64QAM, and corresponding CQI indexes are 7-11; and since a value range of CQI index in the first CQI table is 0-15, in the first CQI table, there are four entries in which a modulation scheme is higher than 64QAM, and corresponding CQI indexes are 12-15, where a smallest CQI index among the entries is 12. Specifically, as shown in Table 1, the entry that is in the first CQI table and is corresponding to the CQI index 12 is the entry that is in the second CQI table and is corresponding to the CQI index 15.</p> |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Claim Language                                          |                                                                                                                                                                                                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                         |                                                                                                                                                                                                                                                                   | <p>to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[e]                                                    | one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses that one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
|---------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|-------------------|-------------------------|---------------------|---|--------------|--|--|---|------|----|--------|---|------|-----|--------|---|------|-----|--------|---|------|-----|--------|---|------|-----|--------|---|------|-----|--------|-----------|-------------------|-------------------------|---------------------|---|-------|-----|--------|---|-------|-----|--------|---|-------|-----|--------|----|-------|-----|--------|----|-------|-----|--------|----|-------|-----|--------|----|-------|-----|--------|----|-------|-----|--------|----|-------|-----|--------|
| Claim Language                                          |                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
|                                                         |                   | <p>[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:</p> <p style="text-align: center;"><b>Table 1</b></p> <table> <tr> <th>CQI index</th><th>Modulation scheme</th><th>Code rate <math>\times</math> 1024</th><th>Spectral efficiency</th></tr> <tr> <td>0</td><td colspan="3">Out of range</td></tr> <tr> <td>1</td><td>QPSK</td><td>78</td><td>0.1523</td></tr> <tr> <td>2</td><td>QPSK</td><td>120</td><td>0.2344</td></tr> <tr> <td>3</td><td>QPSK</td><td>193</td><td>0.3770</td></tr> <tr> <td>4</td><td>QPSK</td><td>308</td><td>0.6016</td></tr> <tr> <td>5</td><td>QPSK</td><td>449</td><td>0.8770</td></tr> <tr> <td>6</td><td>QPSK</td><td>602</td><td>1.1758</td></tr> </table> <p style="text-align: center;">(continued)</p> <table> <tr> <th>CQI index</th><th>Modulation scheme</th><th>Code rate <math>\times</math> 1024</th><th>Spectral efficiency</th></tr> <tr> <td>7</td><td>16QAM</td><td>378</td><td>1.4766</td></tr> <tr> <td>8</td><td>16QAM</td><td>490</td><td>1.9141</td></tr> <tr> <td>9</td><td>16QAM</td><td>616</td><td>2.4063</td></tr> <tr> <td>10</td><td>64QAM</td><td>466</td><td>2.7305</td></tr> <tr> <td>11</td><td>64QAM</td><td>567</td><td>3.3223</td></tr> <tr> <td>12</td><td>64QAM</td><td>666</td><td>3.9023</td></tr> <tr> <td>13</td><td>64QAM</td><td>772</td><td>4.5234</td></tr> <tr> <td>14</td><td>64QAM</td><td>873</td><td>5.1152</td></tr> <tr> <td>15</td><td>64QAM</td><td>948</td><td>5.5547</td></tr> </table> <p>[0144] Further, in the foregoing six types of first CQI tables, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries in which a modulation scheme is higher than 64QAM may be equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM.</p> <p>[0010] With reference to the first aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries</p> |                     | CQI index | Modulation scheme | Code rate $\times$ 1024 | Spectral efficiency | 0 | Out of range |  |  | 1 | QPSK | 78 | 0.1523 | 2 | QPSK | 120 | 0.2344 | 3 | QPSK | 193 | 0.3770 | 4 | QPSK | 308 | 0.6016 | 5 | QPSK | 449 | 0.8770 | 6 | QPSK | 602 | 1.1758 | CQI index | Modulation scheme | Code rate $\times$ 1024 | Spectral efficiency | 7 | 16QAM | 378 | 1.4766 | 8 | 16QAM | 490 | 1.9141 | 9 | 16QAM | 616 | 2.4063 | 10 | 64QAM | 466 | 2.7305 | 11 | 64QAM | 567 | 3.3223 | 12 | 64QAM | 666 | 3.9023 | 13 | 64QAM | 772 | 4.5234 | 14 | 64QAM | 873 | 5.1152 | 15 | 64QAM | 948 | 5.5547 |
| CQI index                                               | Modulation scheme | Code rate $\times$ 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Spectral efficiency |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 0                                                       | Out of range      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 1                                                       | QPSK              | 78                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.1523              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 2                                                       | QPSK              | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.2344              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 3                                                       | QPSK              | 193                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.3770              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 4                                                       | QPSK              | 308                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.6016              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 5                                                       | QPSK              | 449                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.8770              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 6                                                       | QPSK              | 602                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.1758              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| CQI index                                               | Modulation scheme | Code rate $\times$ 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Spectral efficiency |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 7                                                       | 16QAM             | 378                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.4766              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 8                                                       | 16QAM             | 490                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.9141              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 9                                                       | 16QAM             | 616                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.4063              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 10                                                      | 64QAM             | 466                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.7305              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 11                                                      | 64QAM             | 567                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.3223              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 12                                                      | 64QAM             | 666                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.9023              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 13                                                      | 64QAM             | 772                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.5234              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 14                                                      | 64QAM             | 873                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.1152              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |
| 15                                                      | 64QAM             | 948                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.5547              |           |                   |                         |                     |   |              |  |  |   |      |    |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |   |      |     |        |           |                   |                         |                     |   |       |     |        |   |       |     |        |   |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |    |       |     |        |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                         |  | <p>that are in the first CQI table and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0052] With reference to the fourth aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0068] With reference to any one of the foregoing ten possible implementations, in an eleventh possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                         |  | <p>table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>12. The method according to claim 10 or 11, wherein the spectrum efficiency 5.5547 in an entry that is corresponding to CQI index 12 and 256 QAM in the first CQI table is equal to a spectrum efficiency in an entry that is corresponding to CQI index 15 and 64QAM in the second CQI table.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
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| Claim Language                                          |                                                                                                                                                                                                                                                              | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
|                                                         |                                                                                                                                                                                                                                                              | prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 3[f]                                                    | another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:<br><br><div>表 6-3</div> <table><tr><th>第一CQI表格中的CQI编号</th><th>第二CQI表格中的CQI编号</th><th>调制方式modulation</th><th>编码速率×1024code rate×1024</th><th>频谱效率efficiency</th></tr><tr><td>0</td><td>0</td><td colspan="3">out of range</td></tr><tr><td>1</td><td>1</td><td>QPSK</td><td>78</td><td>0.1523</td></tr><tr><td>2</td><td>3</td><td>QPSK</td><td>193</td><td>0.3770</td></tr><tr><td>3</td><td>5</td><td>QPSK</td><td>449</td><td>0.8770</td></tr><tr><td>4</td><td>7</td><td>16QAM</td><td>378</td><td>1.4766</td></tr><tr><td>5</td><td>8</td><td>16QAM</td><td>490</td><td>1.9141</td></tr><tr><td>6</td><td>9</td><td>16QAM</td><td>616</td><td>2.4063</td></tr><tr><td>7</td><td>10</td><td>64QAM</td><td>466</td><td>2.7305</td></tr><tr><td>8</td><td>11</td><td>64QAM</td><td>567</td><td>3.3223</td></tr><tr><td>9</td><td>12</td><td>64QAM</td><td>666</td><td>3.9023</td></tr><tr><td>10</td><td>13</td><td>64QAM</td><td>772</td><td>4.5234</td></tr><tr><td>11</td><td>14</td><td>64QAM</td><td>873</td><td>5.1152</td></tr><tr><td>12</td><td>15</td><td>256QAM</td><td>711</td><td>5.5547</td></tr><tr><td>13</td><td>-</td><td>256QAM</td><td>790</td><td>6.1719</td></tr><tr><td>14</td><td>-</td><td>256QAM</td><td>869</td><td>6.7891</td></tr><tr><td>15</td><td>-</td><td>256QAM</td><td>948</td><td>7.4063</td></tr></table> |                         |                | 第一CQI表格中的CQI编号 | 第二CQI表格中的CQI编号 | 调制方式modulation | 编码速率×1024code rate×1024 | 频谱效率efficiency | 0 | 0 | out of range |  |  | 1 | 1 | QPSK | 78 | 0.1523 | 2 | 3 | QPSK | 193 | 0.3770 | 3 | 5 | QPSK | 449 | 0.8770 | 4 | 7 | 16QAM | 378 | 1.4766 | 5 | 8 | 16QAM | 490 | 1.9141 | 6 | 9 | 16QAM | 616 | 2.4063 | 7 | 10 | 64QAM | 466 | 2.7305 | 8 | 11 | 64QAM | 567 | 3.3223 | 9 | 12 | 64QAM | 666 | 3.9023 | 10 | 13 | 64QAM | 772 | 4.5234 | 11 | 14 | 64QAM | 873 | 5.1152 | 12 | 15 | 256QAM | 711 | 5.5547 | 13 | - | 256QAM | 790 | 6.1719 | 14 | - | 256QAM | 869 | 6.7891 | 15 | - | 256QAM | 948 | 7.4063 |
| 第一CQI表格中的CQI编号                                          | 第二CQI表格中的CQI编号                                                                                                                                                                                                                                               | 调制方式modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 编码速率×1024code rate×1024 | 频谱效率efficiency |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 0                                                       | 0                                                                                                                                                                                                                                                            | out of range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 1                                                       | 1                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 78                      | 0.1523         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 2                                                       | 3                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 193                     | 0.3770         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 3                                                       | 5                                                                                                                                                                                                                                                            | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 449                     | 0.8770         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 4                                                       | 7                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 378                     | 1.4766         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 5                                                       | 8                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 490                     | 1.9141         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 6                                                       | 9                                                                                                                                                                                                                                                            | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 616                     | 2.4063         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 7                                                       | 10                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 466                     | 2.7305         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 8                                                       | 11                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 567                     | 3.3223         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 9                                                       | 12                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 666                     | 3.9023         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 10                                                      | 13                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 772                     | 4.5234         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 11                                                      | 14                                                                                                                                                                                                                                                           | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 873                     | 5.1152         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 12                                                      | 15                                                                                                                                                                                                                                                           | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 711                     | 5.5547         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 13                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 790                     | 6.1719         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 14                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 869                     | 6.7891         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |
| 15                                                      | -                                                                                                                                                                                                                                                            | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 948                     | 7.4063         |                |                |                |                         |                |   |   |              |  |  |   |   |      |    |        |   |   |      |     |        |   |   |      |     |        |   |   |       |     |        |   |   |       |     |        |   |   |       |     |        |   |    |       |     |        |   |    |       |     |        |   |    |       |     |        |    |    |       |     |        |    |    |       |     |        |    |    |        |     |        |    |   |        |     |        |    |   |        |     |        |    |   |        |     |        |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                         |  | <p>[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.</p> <p>[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:</p> |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

**Table 1**

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 0         | Out of range      |                         |                     |
| 1         | QPSK              | 78                      | 0.1523              |
| 2         | QPSK              | 120                     | 0.2344              |
| 3         | QPSK              | 193                     | 0.3770              |
| 4         | QPSK              | 308                     | 0.6016              |
| 5         | QPSK              | 449                     | 0.8770              |
| 6         | QPSK              | 602                     | 1.1758              |

(continued)

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 7         | 16QAM             | 378                     | 1.4766              |
| 8         | 16QAM             | 490                     | 1.9141              |
| 9         | 16QAM             | 616                     | 2.4063              |
| 10        | 64QAM             | 466                     | 2.7305              |
| 11        | 64QAM             | 567                     | 3.3223              |
| 12        | 64QAM             | 666                     | 3.9023              |
| 13        | 64QAM             | 772                     | 4.5234              |
| 14        | 64QAM             | 873                     | 5.1152              |
| 15        | 64QAM             | 948                     | 5.5547              |

[0012] With reference to the first aspect, in a seventh possible implementation, spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression of spectral efficiencies arranged in ascending order; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                         |  | <p>arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2; a spectral efficiency in an entry in which a corresponding CQI index is smallest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; and a spectral efficiency in an entry in which a corresponding CQI index is greatest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is: <math>\frac{4}{3}</math> times the spectral efficiency in the entry in which the corresponding CQI index is greatest among all the entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 8 times a maximum code rate of a terminal, where the maximum code rate is a positive real number less than 1; or 7.4063; or 7.432.</p> <p>[0069] With reference to any one of the foregoing eleven possible implementations, in a twelfth possible implementation, a value range of a CQI index in the first CQI table acquired by the acquiring module is the same as a value range of a CQI index in the second CQI table.</p> <p>13. The method according to claim 11 or 12, wherein a spectral efficiency in an entry in which a corresponding CQI index is highest among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM is: <math>\frac{4}{3}</math> times a spectral efficiency in an entry in which a corresponding CQI index is highest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 7.4063.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |                                                                                                                                                | anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results. |
| 3[g]                                                    | wherein: the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024,” | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                       |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                   | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[h]                                                    | the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024,” and | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                               | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                               | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 3[i]                                                    | a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024." | At least under Pegasus's apparent infringement theory, Xia 681 discloses that a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024." For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |  | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |

#### 4. Claim 4

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                   |                                                                                                                                                                        |
|---------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                   | Exemplary Citations to Xia 681                                                                                                                                         |
| 4                                                       | The method of claim 2, wherein the five CQI index | At least under Pegasus's apparent infringement theory, Xia 681 discloses wherein the five CQI index values for 64QAM modulation, respectively, to have same difference |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

values for 64QAM modulation, respectively, to have same difference within a predetermined error rate, as shown in a table below

| CQI index | modulation | code rate $\times 1024$ | efficiency |
|-----------|------------|-------------------------|------------|
| 0         |            | out of range            |            |
| 1         | QPSK       | 78                      | 0.1523     |
| 2         | QPSK       | 193                     | 0.3770     |
| 3         | QPSK       | 449                     | 0.8770     |
| 4         | 16QAM      | 378                     | 1.4766     |
| 5         | 16QAM      | 490                     | 1.9141     |
| 6         | 16QAM      | 616                     | 2.4063     |
| 7         | 64QAM      | 466                     | 2.7305     |
| 8         | 64QAM      | 567                     | 3.3223     |
| 9         | 64QAM      | 666                     | 3.9023     |
| 10        | 64QAM      | 772                     | 4.5234     |
| 11        | 64QAM      | 873                     | 5.1152     |

**Exemplary Citations to Xia 681**

within a predetermined error rate, as shown in a table below. For example, Xia 681 discloses this limitation based on the following exemplary citations:

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率 $\times 1024$<br>code rate $\times 1024$ | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------------------------|--------------------|
| 0                  | 0                  | out of range       |                                               |                    |
| 1                  | 1                  | QPSK               | 78                                            | 0.1523             |
| 2                  | 3                  | QPSK               | 193                                           | 0.3770             |
| 3                  | 5                  | QPSK               | 449                                           | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                                           | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                                           | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                                           | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                                           | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                                           | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                                           | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                                           | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                                           | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                                           | 5.5547             |
| 13                 | -                  | 256QAM             | 790                                           | 6.1719             |
| 14                 | -                  | 256QAM             | 869                                           | 6.7891             |
| 15                 | -                  | 256QAM             | 948                                           | 7.4063             |

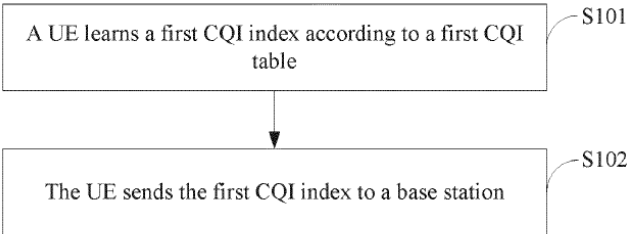
11. The method according to claim 10, wherein, the CQI indices 0 to 12 of the first CQI table correspond to CQI indices 0, 1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14 and 15 of a second CQI table; and each entry in the second CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency.

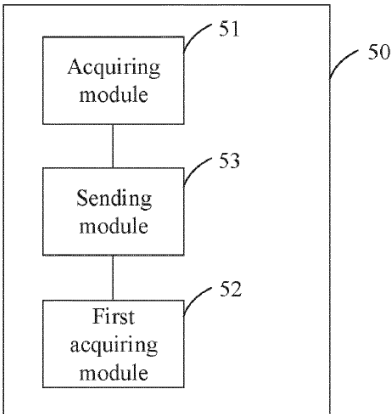
To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the

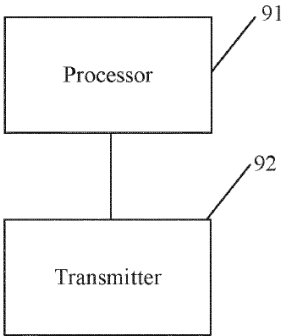
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                         |  | knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results. |

## 5. Claim 5

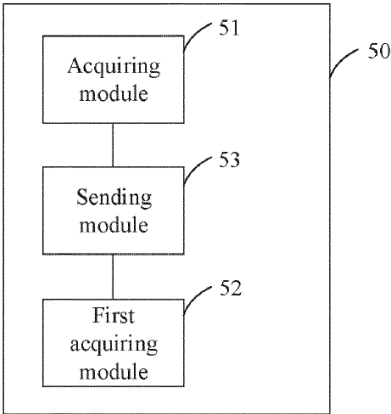
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                               | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5[pre]                                                  | A User Equipment (UE) for transmitting channel state information, comprising: | <p>To the extent the preamble is limiting, at least under Pegasus's apparent infringement theory, Xia 681 discloses a User Equipment (UE) for transmitting channel state information. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude</p> |

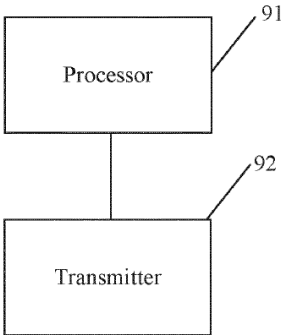
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                         |  | <p>Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The fourth aspect provides a CQI notification device, including: an obtaining module, configured to acquire a first CQI table; and an obtaining module 1: configured to learn, according to the first CQI table acquired by the acquiring module, a first CQI number a sending module: configured to send, by the base station, a first CQI number obtained by the acquiring module 1 to enable the base station to determine a first modulation and coding scheme MCS number according to the first CQI number; A CQI table includes: a parameter whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; at least one modulation mode in the second CQI table is a term of quadrature phase shift keying QPSK, and the at least one modulation mode is QPSK The item includes a combination other than the first combination of the combinations of at least one of the second CQI tables, wherein the first combination is a consecutive CQI number corresponding to the QPSK in the second CQI table. a maximum of N terms, where N is equal to 3 or the N is a positive integer less than 4 or the N is a positive integer; and/or at least one of the second CQI tables is 16QAM; A second modulation scheme CQI table entries includes only QPSK, 16 QAM and 64QAM. Xia 681 at 69.</p>  <pre> graph TD     S101[A UE learns a first CQI index according to a first CQI table] --&gt; S102[The UE sends the first CQI index to a base station]   </pre> <p style="text-align: center;">FIG. 1</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                         |  | <p>[0095] FIG. 1 is a schematic diagram of a CQI notifying method according to an embodiment of the present invention; . . .</p>  <p>FIG. 5</p> <p>[0095] FIG. 5 is a schematic diagram of a CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>[0287] As shown in FIG. 5, an embodiment of the present invention further provides a CQI notifying apparatus 50.</p> <p>The apparatus 50 includes: an acquiring module 51, configured to acquire a first CQI table, where the first CQI table may be predefined by a UE, may be notified by a base station to a UE, or may be selected by a UE from at least two predefined tables according to a downlink channel state. Specifically, a method for notifying the UE by the base station may be: selecting, by the base station, one table from the at least two predefined tables according to a downlink channel state or a downlink channel state</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                         |  | <p>and reporting the selected table to the base station. A CQI table is used for describing a mapping relationship between CQI indexes and entries, and the mapping relationship is not limited to be represented in tabular form, it may be represented by descriptive expression; a first acquiring module 52, configured to learn a first CQI index according to the first CQI table acquired by the acquiring module 51; and a sending module 53, configured to send the first CQI index learned by the first acquiring module 52 to a base station, so that the base station determines a first modulation and coding scheme MCS index according to the first CQI index.</p>  <pre> graph TD     91[Processor] --- 92[Transmitter]   </pre> <p>FIG. 9</p> <p>[0095] FIG. 9 is a schematic diagram of another CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the</p> |

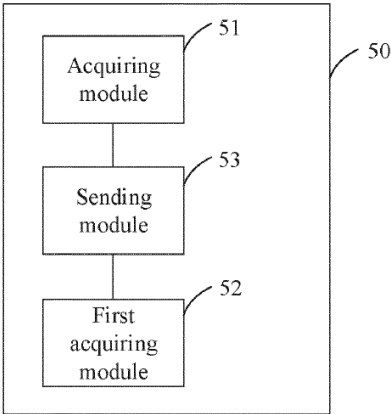
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                        | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                         |                                                                                                        | <p>SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p><i>See also</i> claim element 1[pre].</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[a]                                                    | a receiver configured to receive a reference signal for measuring channel quality from a base station; | At least under Pegasus's apparent infringement theory, Xia 681 discloses a receiver configured to receive a reference signal for measuring channel quality from a base station. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

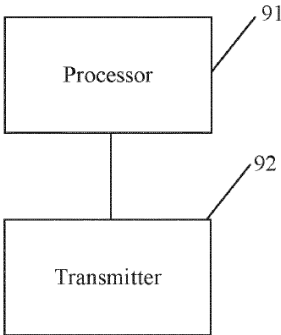
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                         |  |  <p style="text-align: center;">FIG. 5</p> <p>[0095] FIG. 5 is a schematic diagram of a CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>[0287] As shown in FIG. 5, an embodiment of the present invention further provides a CQI notifying apparatus 50.</p> <p>The apparatus 50 includes: an acquiring module 51, configured to acquire a first CQI table, where the first CQI table may be predefined by a UE, may be notified by a base station to a UE, or may be selected by a UE from at least two predefined tables according to a downlink channel state. Specifically, a method for notifying the UE by the base station may be: selecting, by the base station, one table from the at least two predefined tables according to a downlink channel state or a downlink channel state and reporting the selected table to the base station. A CQI table is used for describing a mapping relationship between CQI indexes and entries, and the mapping relationship is not limited to be represented in tabular form, it may be represented by descriptive expression; a first acquiring module 52, configured to learn a first CQI index according to the first CQI table acquired by the acquiring module 51; and a</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                         |  | <p>sending module 53, configured to send the first CQI index learned by the first acquiring module 52 to a base station, so that the base station determines a first modulation and coding scheme MCS index according to the first CQI index.</p>  <pre> graph TD     91[Processor] --- 92[Transmitter]   </pre> <p>FIG. 9</p> <p>[0095] FIG. 9 is a schematic diagram of another CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                         |  | <p>limited to Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Claim Language                                          |                                                                                                                                                                                                                                                                                       | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                         |                                                                                                                                                                                                                                                                                       | <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[b]                                                    | a controller configured to measure the channel quality based on the reference signal, and select a channel quality indicator (CQI) index value from a predetermined CQI index table including CQI index values for 256 quadrature amplitude modulation (QAM) modulation, based on the | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses a controller configured to measure the channel quality based on the reference signal, and select a channel quality indicator (CQI) index value from a predetermined CQI index table including CQI index values for 256 quadrature amplitude modulation (QAM) modulation, based on the measurement result of the channel quality. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

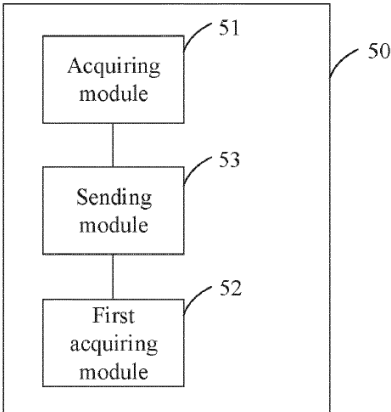
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                       | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                         | <p>measurement result of the channel quality; and</p> |  <p>FIG. 5</p> <p>[0095] FIG. 5 is a schematic diagram of a CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>[0287] As shown in FIG. 5, an embodiment of the present invention further provides a CQI notifying apparatus 50.</p> <p>The apparatus 50 includes: an acquiring module 51, configured to acquire a first CQI table, where the first CQI table may be predefined by a UE, may be notified by a base station to a UE, or may be selected by a UE from at least two predefined tables according to a downlink channel state. Specifically, a method for notifying the UE by the base station may be: selecting, by the base station, one table from the at least two predefined tables according to a downlink channel state or a downlink channel state and reporting the selected table to the base station. A CQI table is used for describing a mapping relationship between CQI indexes and entries, and the mapping relationship is not limited to be represented in tabular form, it may be represented by descriptive expression; a first acquiring module 52, configured to learn a first CQI index according to the first CQI table acquired by the acquiring module 51; and a</p> |

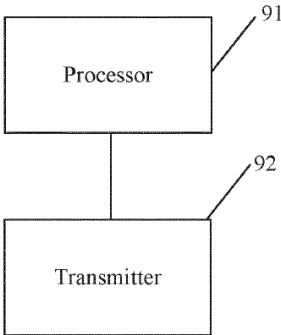
| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                         |  | <p>sending module 53, configured to send the first CQI index learned by the first acquiring module 52 to a base station, so that the base station determines a first modulation and coding scheme MCS index according to the first CQI index.</p>  <pre> graph TD     91[Processor] --- 92[Transmitter]   </pre> <p>FIG. 9</p> <p>[0095] FIG. 9 is a schematic diagram of another CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>As shown in FIG. 1, the steps of the CQI notification method are as follows: The S10 UE learns the first CQI number according to the obtained first CQI table. The first CQI table may be pre-defined by the protocol, and the UE is preset or pre-stored by the UE according to the protocol; or the UE is selected according to the downlink channel state from at least two predefined tables; or may be a base station notification. Specifically, the method for the UE to notify the UE may be that the base station selects one of the uplink channel state or the downlink channel state from at least two predefined tables and notifies the UE. The CQI table is used to describe the mapping relationship between the CQI number and the item. The mapping relationship of the CQI table in the embodiment of the present invention is only for the convenience of understanding the example of the present invention. The representation form of the CQI table in the present invention includes and is not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                         |  | <p>limited to Therefore, in other words, the CQI table can have various combinations, and as long as the mapping relationship between the CQI number and the item can be embodied, it belongs to the scope of protection of the present invention. Specifically, the UE determines the first spectrum efficiency according to the measured first SINR, and then obtains the first CQI number corresponding to the first spectrum efficiency according to the first spectrum efficiency and the first CQI table. The first CQI table is pre-stored by the UE. The first CQI table may include: an item whose modulation mode is higher than 64QAM; At least one modulation mode of the second CQI table is an item of QPSK, and the item of the at least one modulation mode being QPSK may include a combination of the items consisting of at least one of the second CQI tables with a modulation mode of QPSK, except for the first combination. Xia 681 at 92.</p> <p>The first CQI table includes items with a modulation mode higher than 64QAM. For example, the items including the modulation method higher than 64QAM may be one item or multiple items. For example, the modulation mode of the first CQI table that is higher than 64QAM may be 128QAM and/or 256QAM. If the first CQI table includes only one modulation mode, the modulation mode of the item may be Is a modulation mode of 128QAM, 256QAM, or other modulation mode with a higher modulation mode. If the first CQI table includes multiple modulation mode items, the multiple modulation modes included in the first CQI table may be Any one of the 128QAM, 256QAM, or other modulation methods with higher modulation schemes may be any of a variety of modulation schemes such as 128QAM, 256QAM, or other modulation schemes with higher modulation schemes. Xia 681 at 93.</p> <p>In a first aspect, a CQI notification method is provided, including: obtaining a first CQI number according to the obtained first CQI table; and sending a first CQI number to the base station So that the base station determines a first modulation and coding scheme MCS number according to the first CQI number; the first CQI table includes: an item whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; in the second CQI table At least one modulation mode</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |  | <p>is an item of quadrature phase shift keying QPSK, and the item of the at least one modulation mode being QPSK includes a combination of a term consisting of at least one of the second CQI tables and a modulation mode of QPSK a combination other than the combination, the first combination being N consecutive items having the largest CQI number corresponding to QPSK in the second CQI table, wherein N is equal to 3 or the N is a positive integer less than 4 or the N is A positive integer; and/or at least one of the second CQI tables is a 16QAM entry; wherein the modulation in the entries in the second CQI table includes only QPSK, 16 QAM, and 64QAM. Xia 681 at 47.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Claim Language                                          |                                                                                                                            | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                         |                                                                                                                            | <p>channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[c]                                                    | a transmitter configured to transmit channel state information including the selected CQI index value to the base station, | At least under Pegasus's apparent infringement theory, Xia 681 discloses a transmitter configured to transmit channel state information including the selected CQI index value to the base station. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                         |  |  <p style="text-align: center;">FIG. 5</p> <p>[0095] FIG. 5 is a schematic diagram of a CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>[0287] As shown in FIG. 5, an embodiment of the present invention further provides a CQI notifying apparatus 50.</p> <p>The apparatus 50 includes: an acquiring module 51, configured to acquire a first CQI table, where the first CQI table may be predefined by a UE, may be notified by a base station to a UE, or may be selected by a UE from at least two predefined tables according to a downlink channel state. Specifically, a method for notifying the UE by the base station may be: selecting, by the base station, one table from the at least two predefined tables according to a downlink channel state or a downlink channel state and reporting the selected table to the base station. A CQI table is used for describing a mapping relationship between CQI indexes and entries, and the mapping relationship is not limited to be represented in tabular form, it may be represented by descriptive expression; a first acquiring module 52, configured to learn a first CQI index according to the first CQI table acquired by the acquiring module 51; and a</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                         |  | <p>sending module 53, configured to send the first CQI index learned by the first acquiring module 52 to a base station, so that the base station determines a first modulation and coding scheme MCS index according to the first CQI index.</p>  <p>FIG. 9</p> <p>[0095] FIG. 9 is a schematic diagram of another CQI notifying apparatus according to an embodiment of the present invention; . . .</p> <p>S102: The UE sends a first CQ I number to the base station. The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQI number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of transmitting the MCS number to notify the UE, thereby improving system performance. Xia 681 at 101. Xia 681 at 101.</p> <p>In a first aspect, a CQI notification method is provided, including: obtaining a first CQI number according to the obtained first CQI table; and sending a first CQI number to the base station So that the base station determines a first modulation and</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                         |  | <p>coding scheme MCS number according to the first CQI number; the first CQI table includes: an item whose modulation mode is higher than 64-phase quadrature amplitude modulation QAM; in the second CQI table At least one modulation mode is an item of quadrature phase shift keying QPSK, and the item of the at least one modulation mode being QPSK includes a combination of a term consisting of at least one of the second CQI tables and a modulation mode of QPSK a combination other than the combination, the first combination being N consecutive items having the largest CQI number corresponding to QPSK in the second CQI table, wherein N is equal to 3 or the N is a positive integer less than 4 or the N is A positive integer; and/or at least one of the second CQI tables is a 16QAM entry; wherein the modulation in the entries in the second CQI table includes only QPSK, 16 QAM, and 64QAM. Xia 681 at 47.</p> <p>In the LTE (Long Term Evolution) system, the adaptive process of the Physical Downlink Shared Channel (PDSCH) is: User equipment (UE, User Equipment) estimates channel state information. (CSI, Channel State Information) channel information, the UE calculates signal and interference power by using the channel information, based on an optimal rank indication (RI, Rank Indication) and/or a precoding matrix indication (PMI, Precoding Matrix Indication) SINR (Signal to Interference plus Noise Ratio), the UE obtains the CQI value according to the channel quality indicator (CQI, Channel Quality Indicator) according to the SINR. The base station allocates a modulation and coding scheme (MCS) to the UE according to the CQI value and the network condition reported by the UE, where the MCS is used to indicate the modulation mode and the coding mode used by the current PDSCH. In a hotspot scenario, for example, in a LTE-Hi, LTE Hotspot Improvements scenario, the UE needs a higher modulation scheme than 64-channel Quadrature Amplitude Modulation (QAM). However, due to the limitation of the prior art, the value of the CQI is at most 15, and the corresponding modulation mode is 64QAM, so that the UE cannot select a modulation mode with a higher modulation mode than 64QAM, thereby affecting system performance. Similarly, the base station cannot allocate a higher modulation mode to the UE than 64QAM. Xia 681 at 46-47.</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Claim Language                                          |                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                         |                                                                                   | <p>The adaptive flow of the Physical Downlink Shared Channel (PDSCH) is: First, the user equipment (UE, User Equipment) estimates channel information for measuring channel state information (CSI). Second, the UE uses the channel information based on the optimal rank indication (RI, Rank Indication). And/or a Precoding Matrix Indication (PMI) to calculate a Signal to Interference plus Noise Ratio (SINR), and then the UE obtains a corresponding channel quality indicator (CQI according to the SINR). Channel Quality Indicator), and report the CQI value to the base station. Xia 681 at 92.</p> <p>The invention provides a method and a device for notifying a channel quality indication and a modulation and coding scheme, and supporting a UE to select a modulation mode with a modulation mode higher than 64QAM and notifying a base station by using a method for transmitting a CQ I number, and simultaneously supporting a base station to select a modulation mode higher than 64QAM. The modulation method uses the method of sending the MCS number to notify the UE, thereby improving system performance. Xia 681 at 91.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[d]                                                    | wherein: the CQI index table includes three CQI index values for QPSK modulation, | At least under Pegasus's apparent infringement theory, Xia 681 discloses that the CQI index table includes three CQI index values for QPSK modulation, three CQI index values for 16QAM modulation, five CQI index values for 64QAM modulation, and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Claim Language                                          |                                                                                                                                           | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                         | three CQI index values for 16QAM modulation, five CQI index values for 64QAM modulation, and four CQI index values for 256QAM modulation; | <p>four CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p> <p>[0148] Exemplarily, it is assumed that: in the first CQI table, there are three entries in which a modulation scheme is QPSK, and corresponding CQI indexes are 1-3; there are three entries in which a modulation scheme is 16QAM, and corresponding CQI indexes are 4-6; there are five entries in which a modulation scheme is 64QAM, and corresponding CQI indexes are 7-11; and since a value range of CQI index in the first CQI table is 0-15, in the first CQI table, there are four entries in which a modulation scheme is higher than 64QAM, and corresponding CQI indexes are 12-15, where a smallest CQI index among the entries is 12. Specifically, as shown in Table 1, the entry that is in the first CQI table and is corresponding to the CQI index 12 is the entry that is in the second CQI table and is corresponding to the CQI index 15.</p> |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Claim Language                                          |                                                                                                                                                                                                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                         |                                                                                                                                                                                                                                                                   | <p>to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[e]                                                    | one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and | <p>At least under Pegasus's apparent infringement theory, Xia 681 discloses that one of the four CQI index values for 256QAM modulation is configured to have one code rate value that supports a same transmission efficiency as a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:

**Table 1**

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 0         | Out of range      |                         |                     |
| 1         | QPSK              | 78                      | 0.1523              |
| 2         | QPSK              | 120                     | 0.2344              |
| 3         | QPSK              | 193                     | 0.3770              |
| 4         | QPSK              | 308                     | 0.6016              |
| 5         | QPSK              | 449                     | 0.8770              |
| 6         | QPSK              | 602                     | 1.1758              |

(continued)

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 7         | 16QAM             | 378                     | 1.4766              |
| 8         | 16QAM             | 490                     | 1.9141              |
| 9         | 16QAM             | 616                     | 2.4063              |
| 10        | 64QAM             | 466                     | 2.7305              |
| 11        | 64QAM             | 567                     | 3.3223              |
| 12        | 64QAM             | 666                     | 3.9023              |
| 13        | 64QAM             | 772                     | 4.5234              |
| 14        | 64QAM             | 873                     | 5.1152              |
| 15        | 64QAM             | 948                     | 5.5547              |

[0144] Further, in the foregoing six types of first CQI tables, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries in which a modulation scheme is higher than 64QAM may be equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM.

[0010] With reference to the first aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                         |  | <p>that are in the first CQI table and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0052] With reference to the fourth aspect, in a fifth possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>[0068] With reference to any one of the foregoing ten possible implementations, in an eleventh possible implementation, a spectral efficiency in an entry in which a corresponding CQI index is smallest among entries that are in the first CQI table acquired by the acquiring module and in which a modulation scheme is higher than 64QAM is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or spectral efficiencies in T entries in which corresponding CQI indexes are smallest ones among entries that are in the first CQI</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                         |  | <p>table and in which a modulation scheme is higher than 64QAM are equal to or approximately equal to spectral efficiencies in T entries in which corresponding CQI indexes are greatest ones among all entries that are in the second CQI table and in which a modulation scheme is 64QAM, where T is equal to any one natural number of 1-5.</p> <p>10. The method according to any one of claims 6 to 9, wherein the first CQI table consists of 16 entries corresponding to 16 CQI indices ranging from 0 to 15, each entry in the first CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency; and wherein: CQI indices 1 to 3 correspond to 3 entries in which the modulation schemes are quadrature phase shift keying, QPSK and in which the spectrum efficiencies are 0.1523, 0.3770 and 0.8770 respectively; CQI indices 4 to 6 correspond to 3 entries in which the modulation schemes are 16 quadrature amplitude modulation, QAM and in which the spectrum efficiencies are 1.4766, 1.9141 and 2.4063 respectively; CQI indices 7 to 11 correspond to 5 entries in which the modulation schemes are 64 QAM and in which the spectrum efficiencies are 2.7305, 3.3223, 3.9023, 4.5234 and 5.1152 respectively; and CQI indices 12 to 15 correspond to 4 entries in which the modulation schemes are 256 QAM, and the CQI index 12 corresponds to an entry in which spectrum efficiency is 5.5547.</p> <p>12. The method according to claim 10 or 11, wherein the spectrum efficiency 5.5547 in an entry that is corresponding to CQI index 12 and 256 QAM in the first CQI table is equal to a spectrum efficiency in an entry that is corresponding to CQI index 15 and 64QAM in the second CQI table.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |                |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------|
| Claim Language                                          |                                                                                                                                                                                                                                                                       | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                    |                         |                |
|                                                         |                                                                                                                                                                                                                                                                       | prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.                                                                                                                      |                         |                |
| 5[f]                                                    | another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation; and wherein: | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that another of the four CQI index values for 256QAM modulation is configured to have another code rate value same as the code rate value having a maximum transmission efficiency of a CQI index table that excludes CQI index values for 256QAM modulation. For example, Xia 681 discloses this limitation based on the following exemplary citations: |                         |                |
| 表 6-3                                                   |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                         |                |
| 第一CQI表格中的CQI编号                                          | 第二CQI表格中的CQI编号                                                                                                                                                                                                                                                        | 调制方式modulation                                                                                                                                                                                                                                                                                                                                                                                                                    | 编码速率×1024code rate×1024 | 频谱效率efficiency |
| 0                                                       | 0                                                                                                                                                                                                                                                                     | out of range                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                |
| 1                                                       | 1                                                                                                                                                                                                                                                                     | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                              | 78                      | 0.1523         |
| 2                                                       | 3                                                                                                                                                                                                                                                                     | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                              | 193                     | 0.3770         |
| 3                                                       | 5                                                                                                                                                                                                                                                                     | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                              | 449                     | 0.8770         |
| 4                                                       | 7                                                                                                                                                                                                                                                                     | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 378                     | 1.4766         |
| 5                                                       | 8                                                                                                                                                                                                                                                                     | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 490                     | 1.9141         |
| 6                                                       | 9                                                                                                                                                                                                                                                                     | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 616                     | 2.4063         |
| 7                                                       | 10                                                                                                                                                                                                                                                                    | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 466                     | 2.7305         |
| 8                                                       | 11                                                                                                                                                                                                                                                                    | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 567                     | 3.3223         |
| 9                                                       | 12                                                                                                                                                                                                                                                                    | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 666                     | 3.9023         |
| 10                                                      | 13                                                                                                                                                                                                                                                                    | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 772                     | 4.5234         |
| 11                                                      | 14                                                                                                                                                                                                                                                                    | 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                             | 873                     | 5.1152         |
| 12                                                      | 15                                                                                                                                                                                                                                                                    | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                            | 711                     | 5.5547         |
| 13                                                      | -                                                                                                                                                                                                                                                                     | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                            | 790                     | 6.1719         |
| 14                                                      | -                                                                                                                                                                                                                                                                     | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                            | 869                     | 6.7891         |
| 15                                                      | -                                                                                                                                                                                                                                                                     | 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                            | 948                     | 7.4063         |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                         |  | <p>[0106] Modulation schemes in the entries in the second CQI table merely include QPSK, 16QAM, and 64QAM; an entry in the first CQI table may refer to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the first CQI table; and an entry in the second CQI table refers to one modulation scheme, one code rate, and one spectral efficiency that are corresponding to a CQI index in the second CQI table. Apparently, an entry in the present invention may be set according to uplink state information or downlink state information, and the foregoing entries in the first CQI table and the second CQI table in the present invention are only examples, and are not meant to limit the present invention.</p> <p>[0110] For ease of understanding, the following CQI table (namely, the second CQI table) is used as an example for description:</p> |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

**Table 1**

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 0         | Out of range      |                         |                     |
| 1         | QPSK              | 78                      | 0.1523              |
| 2         | QPSK              | 120                     | 0.2344              |
| 3         | QPSK              | 193                     | 0.3770              |
| 4         | QPSK              | 308                     | 0.6016              |
| 5         | QPSK              | 449                     | 0.8770              |
| 6         | QPSK              | 602                     | 1.1758              |

(continued)

| CQI index | Modulation scheme | Code rate $\times 1024$ | Spectral efficiency |
|-----------|-------------------|-------------------------|---------------------|
| 7         | 16QAM             | 378                     | 1.4766              |
| 8         | 16QAM             | 490                     | 1.9141              |
| 9         | 16QAM             | 616                     | 2.4063              |
| 10        | 64QAM             | 466                     | 2.7305              |
| 11        | 64QAM             | 567                     | 3.3223              |
| 12        | 64QAM             | 666                     | 3.9023              |
| 13        | 64QAM             | 772                     | 4.5234              |
| 14        | 64QAM             | 873                     | 5.1152              |
| 15        | 64QAM             | 948                     | 5.5547              |

[0012] With reference to the first aspect, in a seventh possible implementation, spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression of spectral efficiencies arranged in ascending order; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                         |  | <p>arithmetic progression of spectral efficiencies arranged in ascending order refers to that, starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2; a spectral efficiency in an entry in which a corresponding CQI index is smallest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is equal to a spectral efficiency in an entry in which a corresponding CQI index is greatest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; and a spectral efficiency in an entry in which a corresponding CQI index is greatest among the X entries that are in the first CQI table and in which CQI indexes are greatest ones is: <math>\frac{4}{3}</math> times the spectral efficiency in the entry in which the corresponding CQI index is greatest among all the entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 8 times a maximum code rate of a terminal, where the maximum code rate is a positive real number less than 1; or 7.4063; or 7.432.</p> <p>[0069] With reference to any one of the foregoing eleven possible implementations, in a twelfth possible implementation, a value range of a CQI index in the first CQI table acquired by the acquiring module is the same as a value range of a CQI index in the second CQI table.</p> <p>13. The method according to claim 11 or 12, wherein a spectral efficiency in an entry in which a corresponding CQI index is highest among entries that are in the first CQI table and in which a modulation scheme is higher than 64QAM is: <math>\frac{4}{3}</math> times a spectral efficiency in an entry in which a corresponding CQI index is highest among all entries that are in the second CQI table and in which a modulation scheme is 64QAM; or 7.4063.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not</p> |

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                         |                                                                                                                                                | anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results. |
| 5[g]                                                    | wherein: the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024,” | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the one code rate value of the one of the four CQI index values for 256QAM modulation is calculated to be 711 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                       |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                   | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                   | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[h]                                                    | the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024,” and | At least under Pegasus’s apparent infringement theory, Xia 681 discloses that the another code rate value of the another of the four CQI index values for 256QAM modulation is calculated to be 948 using “code rate×1024”. For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                                                                                                                               | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |                                                                                                                                                               | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |
| 5[i]                                                    | a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024." | At least under Pegasus's apparent infringement theory, Xia 681 discloses that a different another code rate value of a different another of the four CQI index values for 256QAM modulation is calculated to be 797 using "code rate×1024." For example, Xia 681 discloses this limitation based on the following exemplary citations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

**Exemplary Citations to Xia 681**

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率×1024<br>code rate×1024 | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------|--------------------|
| 0                  | 0                  | out of range       |                             |                    |
| 1                  | 1                  | QPSK               | 78                          | 0.1523             |
| 2                  | 3                  | QPSK               | 193                         | 0.3770             |
| 3                  | 5                  | QPSK               | 449                         | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                         | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                         | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                         | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                         | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                         | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                         | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                         | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                         | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                         | 5.5547             |
| 13                 | -                  | 256QAM             | 790                         | 6.1719             |
| 14                 | -                  | 256QAM             | 869                         | 6.7891             |
| 15                 | -                  | 256QAM             | 948                         | 7.4063             |

[0153] Optionally, in any one of the foregoing first CQI tables, spectral efficiencies in X entries in which CQI indexes are greatest ones are an arithmetic progression or an approximately arithmetic progression when the spectral efficiencies are arranged in ascending order; when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an arithmetic progression of spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is equal to a same constant; or when it is mentioned that spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are an approximately arithmetic progression of

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                         |  | <p>spectral efficiencies arranged in ascending order, it means that starting from the second entry in the X entries arranged in ascending order of the spectral efficiencies, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is within a range from a constant minus a preset value to the constant plus the preset value; and X is an integer greater than 2.</p> <p>[0154] Specifically, it is assumed that: spectral efficiencies in X entries that are in the first CQI table and in which CQI indexes are greatest ones are respectively (m1, m2, ..., mX); starting from the second entry in the X entries, a difference between a spectral efficiency in each entry and a spectral efficiency in a respective preceding entry is calculated and recorded as ti, where <math>1 \leq i \leq X - 1</math>, that is, (ti, t2,..., tx-i), and <math>t_i = m_{i+1} - m_i</math>.</p> <p>To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |

## 6. Claim 6

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |                                                           |                                                                                                                                                               |
|---------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |                                                           | Exemplary Citations to Xia 681                                                                                                                                |
| 6                                                       | The User Equipment of claim 5, wherein and five CQI index | At least under Pegasus's apparent infringement theory, Xia 681 discloses wherein and five CQI index values for 64QAM modulation, respectively, to have a same |

**Invalidity of U.S. Patent 10,009,161 in view of Xia 681**

**Claim Language**

values for 64QAM modulation, respectively, to have a same difference within a predetermined error rate, as shown in a table below

| CQI index | modulation | code rate $\times 1024$ | efficiency |
|-----------|------------|-------------------------|------------|
| 0         |            | out of range            |            |
| 1         | QPSK       | 78                      | 0.1523     |
| 2         | QPSK       | 193                     | 0.3770     |
| 3         | QPSK       | 449                     | 0.8770     |
| 4         | 16QAM      | 378                     | 1.4766     |
| 5         | 16QAM      | 490                     | 1.9141     |
| 6         | 16QAM      | 616                     | 2.4063     |
| 7         | 64QAM      | 466                     | 2.7305     |
| 8         | 64QAM      | 567                     | 3.3223     |
| 9         | 64QAM      | 666                     | 3.9023     |
| 10        | 64QAM      | 772                     | 4.5234     |
| 11        | 64QAM      | 873                     | 5.1152     |

**Exemplary Citations to Xia 681**

difference within a predetermined error rate, as shown in a table below. For example, Xia 681 discloses this limitation based on the following exemplary citations:

表 6-3

| 第一CQI表格中的<br>CQI编号 | 第二CQI表格中的<br>CQI编号 | 调制方式<br>modulation | 编码速率 $\times 1024$<br>code rate $\times 1024$ | 频谱效率<br>efficiency |
|--------------------|--------------------|--------------------|-----------------------------------------------|--------------------|
| 0                  | 0                  | out of range       |                                               |                    |
| 1                  | 1                  | QPSK               | 78                                            | 0.1523             |
| 2                  | 3                  | QPSK               | 193                                           | 0.3770             |
| 3                  | 5                  | QPSK               | 449                                           | 0.8770             |
| 4                  | 7                  | 16QAM              | 378                                           | 1.4766             |
| 5                  | 8                  | 16QAM              | 490                                           | 1.9141             |
| 6                  | 9                  | 16QAM              | 616                                           | 2.4063             |
| 7                  | 10                 | 64QAM              | 466                                           | 2.7305             |
| 8                  | 11                 | 64QAM              | 567                                           | 3.3223             |
| 9                  | 12                 | 64QAM              | 666                                           | 3.9023             |
| 10                 | 13                 | 64QAM              | 772                                           | 4.5234             |
| 11                 | 14                 | 64QAM              | 873                                           | 5.1152             |
| 12                 | 15                 | 256QAM             | 711                                           | 5.5547             |
| 13                 | -                  | 256QAM             | 790                                           | 6.1719             |
| 14                 | -                  | 256QAM             | 869                                           | 6.7891             |
| 15                 | -                  | 256QAM             | 948                                           | 7.4063             |

11. The method according to claim 10, wherein, the CQI indices 0 to 12 of the first CQI table correspond to CQI indices 0, 1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14 and 15 of a second CQI table; and each entry in the second CQI table at least comprises a CQI index, a modulation scheme and spectrum efficiency.

To the extent it is found that Xia 681 does not expressly disclose this limitation, the limitation is inherent. Moreover, to the extent it is found that Xia 681 does not anticipate this claim, Xia 681 renders it obvious, either alone, in combination with the

| Invalidity of U.S. Patent 10,009,161 in view of Xia 681 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                          |  | Exemplary Citations to Xia 681                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                         |  | <p>knowledge of a person of ordinary skill in the art, and/or in combination with other prior art references identified in the cover pleading or herein. A person of ordinary skill in the art would have been motivated to combine Xia 681 with any of the other prior art references identified in the cover pleading or herein with a reasonable expectation of success because each of these references contains familiar elements within the same field of endeavor to address the same known problems, according to known methods which would yield predictable results.</p> |