

CHANNEL QUALITY INDICATOR REPORTING METHOD AND INTEGRATED ACCESS BACKHAUL NODE

CROSS-REFERENCE TO RELATED APPLICATIONS

5 **[0001]** This application claims priority to Chinese Patent Application No. 202010393800.X, filed in China on May 11, 2020, which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

10 **[0002]** Embodiments of the present invention relate to the field of wireless communications technologies, and in particular, to a channel quality indicator reporting method and an integrated access backhaul node.

BACKGROUND

15 **[0003]** Introduction of integrated access backhaul (Integrated Access Backhaul, IAB) system is to resolve a problem that a wired transmission network is not deployed in place for densely deployed access points. That is, when no wired transmission network is present, the access points may rely on wireless backhaul.

[0004] An IAB node includes a distributed unit (Distributed Unit, DU) functional part and a mobile terminal (Mobile Termination, MT) functional part.

20 **[0005]** In an interference handling method of new radio (New Radio, NR), the IAB-MT can measure interference information of its channel, and report a channel quality indicator (Channel Quality Indicator, CQI) to its parent IAB node.

[0006] However, at present, interference of the IAB-DU to the IAB-MT is not considered in the interference information of the channel measured by the IAB-MT

and the reported CQI, resulting in inaccuracy of the reported CQI and affecting transmission on a backhaul link.

SUMMARY

[0007] Embodiments of the present invention provide a channel quality indicator reporting method and an integrated access backhaul node, so as to resolve the problem of interference of an IAB-DU to an IAB-MT being not considered in interference information of a channel measured by the IAB-MT and a reported CQI, which results in inaccuracy of the reported CQI and affecting transmission on a backhaul link.

[0008] In order to resolve the foregoing technical problem, the present invention is implemented as follows:

[0009] According to a first aspect, an embodiment of the present invention provides a channel quality indicator reporting method, applied to an IAB node, where the IAB node includes an IAB-DU and an IAB-MT. The method includes:

obtaining a target CQI type that needs to be reported, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating a CQI of the target CQI type; and calculating and reporting the CQI of the target CQI type.

[0010] According to a second aspect, an embodiment of the present invention provides a channel quality indicator reporting method, applied to an IAB node and including:

receiving a CQI reported by a child IAB node, where the child IAB node includes an IAB-DU and an IAB-MT; and

determining a target CQI type of the reported CQI, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.

[0011] According to a third aspect, an embodiment of the present invention provides an integrated access backhaul node, including:

a first obtaining module, configured to obtain a target CQI type that needs to be reported, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating a CQI of the target CQI type; and

a reporting module, configured to calculate and report the CQI of the target CQI type.

[0012] Optionally, the target CQI type includes at least one of the following:

a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT;

a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference of another interference source to reception of the IAB-MT;

a fourth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where

the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[0013] Optionally, the target CQI type is determined in at least one of the following manners:

being specified by a protocol;

being configured by a parent IAB node or a CU;

5 being dynamically indicated by the parent IAB node or the CU; and

being determined by the IAB node.

[0014] Optionally, if the target CQI type is configured by the parent IAB node or the CU, the first obtaining module is configured to receive CSI report configuration information, where the CSI report configuration information carries the target CQI type.

[0015] Optionally, the CSI report configuration information includes a CSI report quantity field, the CSI report quantity field includes at least one report CQI item, and the report CQI item indicates at least one target CQI type that needs to be reported; or

15 the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item.

[0016] Optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

[0017] Optionally, if the target CQI type is dynamically indicated by the parent IAB node or the CU, the first obtaining module is configured to receive downlink control information, where the downlink control information is used to indicate at least one target CQI type that needs to be reported. Optionally, the downlink control information is downlink control information that triggers aperiodic or semi-static CSI reporting.

[0018] Optionally, the reporting module is configured to carry the target CQI type during CQI reporting.

30 **[0019]** Optionally, the IAB node further includes:

a second obtaining module, configured to obtain CSI report configuration information, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

[0020] Optionally, the first obtaining module is configured to obtain, based on configuration of a measurement resource, the target CQI type that needs to be reported, where the measurement resource includes at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.

[0021] Optionally, the first obtaining module executes at least one of the following:

if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type includes at least one of the following: the first CQI type and the fourth CQI type;

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[0022] According to a fourth aspect, an embodiment of the present invention provides an integrated access backhaul node, including:

a receiving module, configured to receive a CQI reported by a child IAB node, where the child IAB node includes an IAB-DU and an IAB-MT; and

a determining module, configured to determine a target CQI type of the reported CQI, where different interference information is used for calculating CQIs

of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.

[0023] Optionally, the target CQI type includes at least one of the following:

5 a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT;

 a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes
10 interference of reception of the IAB-DU to reception of the IAB-MT;

 a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference of another interference source to reception of the IAB-MT;

 a fourth CQI type, where interference corresponding to the interference
15 information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

 a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of
20 interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where

 the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[0024] Optionally, the target CQI type is determined in at least one of the
25 following manners:

 being specified by a protocol;

 being configured by the IAB node or a CU;

 being dynamically indicated by the IAB node or the CU; and

 being determined by the child IAB node.

[0025] Optionally, if the target CQI type is configured by the IAB node or the CU, the IAB node further includes:

5 a first sending module, configured to send CSI report configuration information to the child IAB node, where the CSI report configuration information carries the target CQI type.

[0026] Optionally, the CSI report configuration information includes a CSI report quantity field, the CSI report quantity field includes at least one report CQI item, and the report CQI item is used to indicate at least one target CQI type that needs to be reported; or

10 the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item.

[0027] Optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

[0028] Optionally, if the target CQI type is dynamically indicated by the IAB node or the CU, the IAB node further includes:

20 a second sending module, configured to send downlink control information to the child IAB node, where the downlink control information is used to indicate at least one target CQI type that needs to be reported.

[0029] Optionally, the downlink control information is downlink control information that triggers aperiodic or semi-static CSI reporting.

[0030] Optionally, the determining module is configured to obtain the target CQI type carried in the reported CQI.

[0031] Optionally, the IAB node further includes:

30 a third sending module, configured to send CSI report configuration information to the child IAB node, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

[0032] Optionally, the determining module is configured to determine, based on configuration of a measurement resource, the target CQI type of the reported CQI, where the measurement resource includes at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.

[0033] Optionally, the determining module is configured to execute at least one of the following:

if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type includes at least one of the following: the first CQI type and the fourth CQI type;

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[0034] According to a fifth aspect, an embodiment of the present invention provides a terminal, including a processor, a memory, and a computer program stored in the memory and capable of running on the processor, when the computer program is executed by the processor, the steps of the channel quality indicator reporting method according to the first aspect are implemented, or when the computer program is executed by the processor, the steps of the channel quality indicator reporting method according to the second aspect are implemented.

[0035] According to a sixth aspect, an embodiment of the present invention provides a computer-readable storage medium, where a computer program is stored

in the computer-readable storage medium, and when the computer program is executed by a processor, the steps of the channel quality indicator reporting method according to the first aspect are implemented, or when the computer program is executed by a processor, the steps of the channel quality indicator reporting method
5 according to the second aspect are implemented.

[0036] In the embodiments of the present invention, the CQI reported by the IAB node can reflect the interference of the IAB-DU to the IAB-MT, thereby making the reported CQI more accurate.

BRIEF DESCRIPTION OF DRAWINGS

10 **[0037]** Other advantages and benefits will become apparent to those of ordinary skill in the art by reading detailed description of the illustrative embodiments below. The accompanying drawings are merely intended to illustrate the objectives of the preferred embodiments and are not intended to limit the present invention. Throughout the accompanying drawings, the same reference numerals represent the
15 same components. In the accompanying drawings:

[0038] FIG. 1 is a schematic diagram of an IAB system;

[0039] FIG. 2 is a schematic diagram of a CU-DU structure of an IAB system;

[0040] FIG. 3 is a schematic diagram of interference of transmission of an IAB-DU to reception of an IAB-MT;

20 **[0041]** FIG. 4 is a schematic diagram of interference of reception of an IAB-DU to reception of an IAB-MT;

[0042] FIG. 5 is a schematic flowchart of a channel quality indicator reporting method according to an embodiment of the present invention;

[0043] FIG. 6 is a schematic flowchart of a channel quality indicator reporting
25 method according to another embodiment of the present invention;

[0044] FIG. 7 is a schematic structural diagram of an IAB node according to an embodiment of the present invention;

[0045] FIG. 8 is a schematic structural diagram of an IAB node according to another embodiment of the present invention;

[0046] FIG. 9 is a schematic structural diagram of an IAB node according to still another embodiment of the present invention; and

5 [0047] FIG. 10 is a schematic structural diagram of an IAB node according to yet another embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0048] In the specification and claims of this application, the term "include" and any other variants thereof are intended to cover the non-exclusive inclusion, for
10 example, a process, method, system, product, or device that includes a list of steps or units is not necessarily limited to those expressly listed steps or units, but may include other steps or units not expressly listed or inherent to such a process, method, system, product, or device. In addition, in the specification and claims, the use of "and/or" represents presence of at least one of the connected objects, for example, "A
15 and/or B" indicates the following three cases: A alone, B alone, or both A and B.

[0049] In the embodiments of the present invention, the terms "an example" or "for example" are used to represent an example, an illustration, or a description. Any embodiment or design scheme described as "an example" or "for example" in the
20 embodiments of the present invention should not be construed as being more preferred or advantageous than other embodiments or design schemes. To be precise, the words such as "an example" or "for example" are intended to present a related concept in a specific manner.

[0050] The following describes the embodiments of the present invention with reference to the accompanying drawings. A channel quality indicator reporting
25 method and an integrated access backhaul node provided by the embodiments of the present invention may be applied to a wireless communications system. The wireless communications system may be a 5G system, an evolved long term evolution

(Evolved Long Term Evolution, eLTE) system, or a later evolved communications system.

[0051] The following first describes some communications terms involved in the embodiments of the present invention.

5 **[0052]** (1) Integrated access backhaul (Integrated Access Backhaul, IAB) system

[0053] FIG. 1 is a schematic diagram of an IAB system. One access point (that is, an access IAB node (Access IAB node) in FIG. 1) can find one upstream access point (that is, an intermediate IAB node (Intermediate IAB node in FIG. 1), also referred to as a parent IAB node (parent IAB node)), and establish a wireless
10 connection to the upstream access point. The wireless connection is referred to as a backhaul link (backhaul link). The upstream access point also needs to establish a wireless connection to a donor (donor) IAB node, so as to establish a complete backhaul link. A complete backhaul link includes one donor IAB node, and the donor IAB node is directly connected to a wired transmission network through a
15 cable (Cable). After an IAB node establishes a complete backhaul link, the IAB node is able to provide an access (Access) service for user equipments (User Equipment, UE).

[0054] FIG. 2 is a schematic structural diagram of a centralized unit-distributed unit (Centralized Unit-Distributed Unit, CU-DU) of an IAB system. An IAB node
20 includes a distributed unit (Distributed Unit, DU) functional part and a mobile terminal (Mobile Termination, MT) functional part. The donor IAB node has no MT functional part. By using an MT, an access point can find an upstream access point and establish a backhaul link to a DU of the upstream access point. After an IAB node has established a complete backhaul link, the IAB node enables its DU function
25 and the DU provides cell services, that is, the DU may provide access services for UEs. In one backhaul link, DUs of all IAB nodes are connected to a centralized unit (Centralized Unit, CU) node, and the CU node configures the DUs through an F1-AP protocol, and configures MTs through a radio resource control (Radio Resource Control, RRC) protocol.

30 **[0055]** (2) Status of interference of the IAB-DU to the IAB-MT

[0056] A DU and an MT of an IAB node each can perform transmission (TX) and reception (RX) independently, and transmission and reception of the IAB-DU may cause interference to reception of the IAB-MT.

[0057] For a status of interference of transmission of the IAB-DU to reception of the IAB-MT, refer to FIG. 3. When transmission (TX) of the IAB-DU and reception (RX) of the IAB-MT are performed simultaneously, the transmission of the IAB-DU may interfere with the reception of the IAB-MT. For a status of interference of reception of the IAB-DU to reception of the IAB-MT, refer to FIG. 4. When reception (RX) of the IAB-DU and reception (RX) of the IAB-MT are performed simultaneously, a signal transmitted to the IAB-DU may leak to the IAB-MT, causing interference to the reception of the IAB-MT.

[0058] (3) Interference measurement and channel quality indicator (Channel Quality Indicator, CQI) reporting

[0059] In an interference handling method of NR, the IAB-MT may measure interference information of its channel and report a CQI to its parent IAB node.

[0060] However, at present, interference of the IAB-DU to the IAB-MT is not considered in the interference information of the channel measured by the IAB-MT and the reported CQI, resulting in inaccuracy of the reported CQI and affecting transmission on a backhaul link.

[0061] In order to resolve the above problem, referring to FIG. 5, FIG. 5 is a schematic flowchart of a channel quality indicator reporting method according to an embodiment of the present invention. The method is applied to an IAB node, and the IAB node includes an IAB-DU and an IAB-MT. The method includes the following steps.

[0062] Step 51: Obtain a target CQI type that needs to be reported, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating a CQI of the target CQI type.

[0063] Step 52: Calculate and report the CQI of the target CQI type.

[0064] In this embodiment of the present invention, the CQI reported by the IAB node can reflect the interference of the IAB-DU to the IAB-MT, thereby making the reported CQI more accurate.

[0065] In this embodiment of the present invention, optionally, the target CQI
5 type includes at least one of the following:

a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, where interference corresponding to the interference
10 information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT;

a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference of another interference source to reception of the IAB-MT;

a fourth CQI type, where interference corresponding to the interference
15 information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

a fifth CQI type, where interference corresponding to the interference
20 information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where

the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[0066] The interference information used for calculating the CQI of the fourth
25 CQI type and/or the interference information used for calculating the CQI of the fifth CQI type is a maximum reference interference received by the IAB-MT at a corresponding time occasion.

[0067] (I) In some embodiments of the present invention, the target CQI type may be determined in an explicit manner, which is illustrated by using an example below.

[0068] In this embodiment of the present invention, the target CQI type is
5 obtained in at least one of the following manners:

[0069] (1) Being specified by a protocol.

[0070] (2) Being configured by a parent IAB node or a CU.

[0071] If the target CQI type is configured by the parent IAB node or the CU, optionally, the obtaining a target CQI type that needs to be reported includes:
10 receiving CSI report configuration information, where the CSI report configuration information carries the target CQI type. The CSI report configuration information may be, for example, CSI-ReportConfig (channel state information report configuration).

[0072] In some embodiments of the present invention, optionally, the CSI report
15 configuration information includes a CSI report quantity field, the CSI report quantity field includes at least one report CQI item (for example, cri-RI-PMI-CQI_TypeA, cri-RI-PMI-CQI_TypeB, or cri-RI-PMI-CQI_TypeA&B in the following Embodiment 1), and the report CQI item indicates at least one target CQI type that needs to be reported.

20 **[0073]** In this embodiment of the present invention, optionally, the report CQI item is one of a plurality of optional report CQI items specified by the protocol.

[0074] In this embodiment of the present invention, optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

25 **[0075]** In some other embodiments of the present invention, optionally, the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item. The CSI report quantity field is, for example, CSI reportQuantity.

[0076] In this embodiment of the present invention, optionally, the indicator field includes a target parameter, and the target parameter is used to indicate at least one target CQI type corresponding to the report CQI item, and the target parameter is one of a plurality of optional parameters specified by the protocol.

5 **[0077]** In this embodiment of the present invention, optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

[0078] In this embodiment of the present invention, during configuring of the target CQI type, the existing CSI report configuration information may be used for
10 configuration, so as to minimize signaling overheads and reduce impact on complexity of a device.

[0079] (3) Being dynamically indicated by the parent IAB node or the CU.

[0080] If the target CQI type is dynamically indicated by the parent IAB node or the CU, optionally, the obtaining a target CQI type that needs to be reported includes:
15 receiving downlink control information (Downlink Control Information, DCI), where the downlink control information is used to indicate at least one target CQI type that needs to be reported.

[0081] Optionally, the downlink control information includes a target code point, the target code point is used to indicate at least one target CQI type that needs to be
20 reported, and the target CQI type indicated by the target code point is at least one of a plurality of CQI types specified by the protocol.

[0082] Optionally, the target code point is one of a plurality of optional code points specified by the protocol.

[0083] Optionally, the downlink control information is downlink control
25 information that triggers aperiodic or semi-static CSI reporting.

[0084] In this embodiment of the present invention, during indicating of the target CQI type, the existing DCI may be used for indication, so as to minimize signaling overheads and reduce impact on complexity of a device.

[0085] (4) Being determined by the IAB node.

[0086] In this embodiment of the present invention, optionally, the calculating and reporting the CQI of the target CQI type includes: having the target CQI type carried in the CQI for reporting. For example, the target CQI type may be carried in a fixed field of CSI signaling carrying the CQI report.

5 **[0087]** Such manner is especially applicable to a case that the target CQI type is determined by the IAB node. Because the target CQI type is determined by the IAB node, the IAB node has the target CQI type carried in the CQI for reporting, so that the parent IAB node clearly learns of a type of the CQI reported by the IAB node, reaching consistent understanding.

10 **[0088]** In this embodiment of the present invention, optionally, before the calculating and reporting the CQI of the target CQI type, the method further includes: obtaining CSI report configuration information, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting. The CSI report configuration information may be, for example,
15 CSI-ReportConfig.

[0089] (II) In some embodiments of the present invention, the target CQI type may be determined through behavior of the IAB node in an implicit manner, which is illustrated by using an example below.

[0090] In some embodiments of the present invention, the obtaining a target CQI
20 type that needs to be reported includes: obtaining, based on configuration of a measurement resource, the target CQI type that needs to be reported, where the measurement resource includes at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.

25 **[0091]** Optionally, the obtaining, based on configuration of a measurement resource, the target CQI type that needs to be reported includes at least one of the following:

[0092] (1) If the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the
30 IAB-MT and transmission of the IAB-DU being at the first time occasion,

determining that the target CQI type includes at least one of the following: the first CQI type and the fourth CQI type.

[0093] That is, the target CQI type includes at least one of the following:

5 a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT; and

10 a fourth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT.

[0094] (2) If the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[0095] That is, the target CQI type includes at least one of the following:

a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT; and

20 a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT.

[0096] (3) If the interference measurement resource configuration overlaps
25 (completely or partially) the cross-link interference (Cross Link Interference, CLI) measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[0097] The cross-link interference measurement resource configuration includes, for example, SRS-RSRP (reference signal received power) and/or SRS-RSSI
30 (received signal strength indication) measurement resources.

[0098] That is, the target CQI type includes at least one of the following:

a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT; and

5 a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT.

[0099] Referring to FIG. 6. FIG. 6 is a schematic flowchart of a channel quality indicator reporting method according to another embodiment of the present invention. The channel quality indicator reporting method is applied to an IAB node and includes the following steps.

[00100] Step 61: Receive a CQI reported by a child IAB node, where the child IAB node includes an IAB-DU and an IAB-MT.

15 [00101] Step ~~61~~62: Determine a target CQI type of the reported CQI, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.

[00102] In this embodiment of the present invention, for the CQI reported by the child IAB node, interference of the IAB-DU unit of the child IAB node to the IAB-MT unit of the child IAB node is considered in the reported CQI, so that the IAB node responsible for scheduling the child IAB node can adjust transmission parameters based on the interference of the IAB-DU unit of the child IAB node to the IAB-MT unit of the child IAB node.

25 [00103] In this embodiment of the present invention, optionally, the target CQI type includes at least one of the following:

a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT;

5 a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference of another interference source to reception of the IAB-MT;

a fourth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and
10 interference of another interference source to reception of the IAB-MT; and

a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where

15 the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[00104] (I) In some embodiments of the present invention, the target CQI type may be determined in an explicit manner, which is illustrated by using an example below.

20 **[00105]** Optionally, the target CQI type is determined in at least one of the following manners:

[00106] (1) Being specified by a protocol.

[00107] (2) Being configured by the IAB node or a CU.

[00108] If the target CQI type is configured by the IAB node or the CU,
25 optionally, before the receiving a CQI reported by a child IAB node, the method further includes: sending CSI report configuration information to the child IAB node, where the CSI report configuration information carries the target CQI type.

[00109] In some embodiments of the present invention, optionally, the CSI report configuration information includes a CSI report quantity field, the CSI report

quantity field includes at least one report CQI item, and the report CQI item indicates at least one target CQI type that needs to be reported.

[00110] Optionally, the report CQI item is one of a plurality of optional parameter items specified by the protocol.

5 **[00111]** In some other embodiments of the present invention, optionally, the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item.

10 **[00112]** Optionally, the indicator field includes a target parameter, and the target parameter is used to indicate at least one target CQI type corresponding to the report CQI item, and the target parameter is one of a plurality of optional parameters specified by the protocol.

[00113] Optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

[00114] (3) Being dynamically indicated by the IAB node or the CU.

[00115] If the target CQI type is dynamically indicated by the IAB node or the CU, optionally, before the receiving a CQI reported by a child IAB node, the method
20 further includes: sending downlink control information to the child IAB node, where the downlink control information is used to indicate at least one target CQI type that needs to be reported.

[00116] Optionally, the downlink control information includes a target code point, the target code point is used to indicate at least one target CQI type that needs to be
25 reported, and the target CQI type indicated by the target code point is at least one of a plurality of CQI types specified by the protocol.

[00117] Optionally, the target code point is one of a plurality of optional code points specified by the protocol.

[00118] Optionally, the downlink control information is downlink control
30 information that triggers aperiodic or semi-static CSI reporting.

[00119] (4) Being determined by the child IAB node.

[00120] Optionally, the determining a target CQI type of the reported CQI includes: obtaining the target CQI type carried in the reported CQI.

[00121] Optionally, before the determining a target CQI type of the reported CQI,
5 the method further includes: sending CSI report configuration information to the child IAB node, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

[00122] (II) In some embodiments of the present invention, the target CQI type may be determined in an implicit manner, which is illustrated by using an example
10 below.

[00123] In some embodiments of the present invention, the determining a target CQI type of the reported CQI includes: determining, based on configuration of a measurement resource, the target CQI type of the reported CQI, where the measurement resource includes at least one of the following: a channel measurement
15 resource, an interference measurement resource, and a cross-link interference measurement resource.

[00124] Optionally, the determining, based on configuration of a measurement resource, the target CQI type of the reported CQI includes at least one of the following:

20 if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type includes at least one of the following: the first CQI type and the fourth CQI type;

25 if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

5 **[00125]** The following describes the method for determining the target CQI type in the embodiments of the present invention with reference to specific embodiments.

[00126] Embodiment 1

[00127] In this embodiment of the present invention, the target CQI type is configured by the parent IAB node or the CU, for example, being configured in
10 CSI-ReportConfig. The CSI-ReportConfig includes a CSI reportQuantity field, and the CSI reportQuantity field includes at least one report CQI item (for example, cri-RI-PMI-CQI_TypeA, cri-RI-PMI-CQI_TypeB, and cri-RI-PMI-CQI_TypeA&B, as described below), the report CQI item is used to indicate at least one target CQI type that needs to be reported.

15 **[00128]** In this embodiment of the present invention, optionally, the report CQI item is one of a plurality of optional report CQI items specified by the protocol. Assuming that the optional report CQI items specified by the protocol include cri-RI-PMI-CQI_TypeA, cri-RI-PMI-CQI_TypeB, and cri-RI-PMI-CQI_TypeA&B, the report CQI item is selected from cri-RI-PMI-CQI_TypeA,
20 cri-RI-PMI-CQI_TypeB, and cri-RI-PMI-CQI_TypeA&B, where cri-RI-PMI-CQI_TypeA is used to indicate the target CQI type that needs to be reported being TypeA, and cri-RI-PMI-CQI_TypeA&B is used to indicate the target CQI type that needs to be reported being TypeA and TypeB.

[00129] In this embodiment of the present invention, optionally, the target CQI
25 type carried in the CSI reportQuantity field is at least one of a plurality of optional CQI types specified by the protocol. It is assumed that the optional CQI types specified by the protocol include TypeA and TypeB, and the target CQI type carried in the CSI reportQuantity field is TypeA, TypeB, or TypeA&TypeB.

[00130] CSI-ReportConfig is configured as follows, where an underlined part is a
30 newly added item.

	reportQuantity	CHOICE {
	none	NULL,
	cri-RI-PMI-CQI	NULL,
	<u>cri-RI-PMI-CQI_TypeA</u>	NULL,
5	<u>cri-RI-PMI-CQI_TypeB</u>	NULL,
	<u>cri-RI-PMI-CQI_TypeA&B</u>	NULL,
	...	
	cri-RI-i1	NULL,
	cri-RI-i1-CQI	SEQUENCE {
10	pdsch-BundleSizeForCSI	ENUMERATED {n2, n4}
	OPTIONAL -- Need S	
	}	
	<u>cri-RI-i1-CQI_TypeA</u>	SEQUENCE {
	pdsch-BundleSizeForCSI	ENUMERATED {n2, n4}
15	<u>OPTIONAL -- Need S</u>	
	}	
	<u>cri-RI-i1-CQI_TypeB</u>	SEQUENCE {
	pdsch-BundleSizeForCSI	ENUMERATED {n2, n4}
	<u>OPTIONAL -- Need S</u>	
20	}	
	<u>cri-RI-i1-CQI_TypeA&B</u>	SEQUENCE {
	pdsch-BundleSizeForCSI	ENUMERATED {n2, n4}
	<u>OPTIONAL -- Need S</u>	
	}	
25	...	
	cri-RI-CQI	NULL,
	<u>cri-RI-CQI_TypeA</u>	NULL,
	<u>cri-RI-CQI_TypeB</u>	NULL,
	<u>cri-RI-CQI_TypeA&B</u>	NULL,
30	...	

	cri-RSRP	NULL,
	ssb-Index-RSRP	NULL,
	cri-RI-LI-PMI-CQI	NULL
	<u>cri-RI-LI-PMI-CQI_TypeA</u>	<u>NULL</u>
5	<u>cri-RI-LI-PMI-CQI_TypeB</u>	<u>NULL</u>
	<u>cri-RI-LI-PMI-CQI_TypeA&B</u>	<u>NULL</u>
	...	
	}	

[00131] Embodiment 2

10 **[00132]** In this embodiment of the present invention, the target CQI type is configured by the parent IAB node or the CU, for example, being configured in CSI-ReportConfig. The CSI-ReportConfig includes a CSI reportQuantity field and an indicator field. The CSI reportQuantity field includes at least one report CQI item (for example, cri-RI-PMI-CQI and cri-RI-i1-CQI, as described below), and the

15 indicator field includes a target parameter (for example, TypeA, TypeB, and TypeA&B, as described below), where the target parameter is used to indicate at least one target CQI type corresponding to the report CQI item. The indicator field is embedded in the CSI reportQuantity field or is a field parallel to the CSI reportQuantity field.

20 **[00133]** In this embodiment of the present invention, optionally, the target parameter is one of a plurality of optional parameters specified by the protocol. For example, the optional parameters specified by the protocol include: TypeA, TypeB, and TypeA&B, and the indicator field carries one of TypeA, TypeB, and TypeA&B.

	reportQuantity	CHOICE {
25	none	NULL,
	cri-RI-PMI-CQI	NULL,
	cri-RI-i1	NULL,
	cri-RI-i1-CQI	SEQUENCE {
	pdsch-BundleSizeForCSI	ENUMERATED {n2, n4}
30	OPTIONAL	-- Need S

```

        },
        cri-RI-CQI                                NULL,
        cri-RSRP                                  NULL,
        ssb-Index-RSRP                            NULL,
5         cri-RI-LI-PMI-CQI                        NULL
    },
    CQIType                                     CHOICE {
    None                                         NULL,
    TypeA                                       NULL,
10    TypeB                                       NULL,
    TypeA&B                                    NULL,
    ...
    }

```

[00134] Referring to FIG. 7, the present invention further provides an integrated
15 access backhaul node 70. The IAB node 70 includes an IAB-DU and an IAB-MT,
and further includes:

a first obtaining module 71, configured to obtain a target CQI type that
needs to be reported, where different interference information is used for calculating
CQIs of different target CQI types, and interference of the IAB-DU to reception of
20 the IAB-MT is considered in interference information used for calculating a CQI of
the target CQI type; and

a reporting module 72, configured to calculate and report the CQI of the
target CQI type.

[00135] In this embodiment of the present invention, the CQI reported by the IAB
25 node can reflect the interference of the IAB-DU to the IAB-MT, thereby making the
reported CQI more accurate.

[00136] Optionally, the target CQI type includes at least one of the following:

a first CQI type, where interference corresponding to the interference
information used for calculation of a CQI of the first CQI type includes interference
30 of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT;

5 a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference of another interference source to reception of the IAB-MT;

a fourth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and
10 interference of another interference source to reception of the IAB-MT; and

a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where
15 the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[00137] Optionally, the target CQI type is determined in at least one of the following manners:

being specified by a protocol;
20 being configured by a parent IAB node or a CU;
being dynamically indicated by the parent IAB node or the CU; and
being determined by the IAB node.

[00138] Optionally, if the target CQI type is configured by the parent IAB node or the CU, the first obtaining module is configured to receive CSI report configuration
25 information, where the CSI report configuration information carries the target CQI type.

[00139] Optionally, the CSI report configuration information includes a CSI report quantity field, the CSI report quantity field includes at least one report CQI item, and the report CQI item indicates at least one target CQI type that needs to be
30 reported; or

the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item.

- 5 **[00140]** Optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

- [00141]** Optionally, if the target CQI type is dynamically indicated by the parent IAB node or the CU, the first obtaining module is configured to receive downlink
10 control information, where the downlink control information is used to indicate at least one target CQI type that needs to be reported.

[00142] Optionally, the downlink control information is downlink control information that triggers aperiodic or semi-static CSI reporting.

- [00143]** Optionally, the reporting module is configured to carry the target CQI
15 type during CQI reporting.

[00144] Optionally, the IAB node further includes:

 a second obtaining module, configured to obtain CSI report configuration information, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

- 20 **[00145]** Optionally, the first obtaining module is configured to obtain, based on configuration of a measurement resource, the target CQI type that needs to be reported, where the measurement resource includes at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.

- 25 **[00146]** Optionally, the first obtaining module executes at least one of the following:

 if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the

target CQI type includes at least one of the following: the first CQI type and the fourth CQI type;

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[00147] The IAB node~~terminal~~ provided in this embodiment of the present invention is capable of implementing the processes implemented by the IAB node in the method embodiment in FIG. 5. To avoid repetition, details are not described herein again.

[00148] Referring to FIG. 8, the present invention further provides an integrated access backhaul node 80, including:

a receiving module 81, configured to receive a CQI reported by a child IAB node, where the child IAB node includes an IAB-DU and an IAB-MT; and

a determining module 82, configured to determine a target CQI type of the reported CQI, where different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.

[00149] In this embodiment of the present invention, for the CQI reported by the child IAB node, interference of the IAB-DU unit of the child IAB node to the IAB-MT unit of the child IAB node is considered in the reported CQI, so that the IAB node responsible for scheduling the child IAB node can adjust transmission parameters based on the interference of the IAB-DU unit of the child IAB node to the IAB-MT unit of the child IAB node.

[00150] Optionally, the target CQI type includes at least one of the following:

a first CQI type, where interference corresponding to the interference information used for calculation of a CQI of the first CQI type includes interference of transmission of the IAB-DU to reception of the IAB-MT;

5 a second CQI type, where interference corresponding to the interference information used for calculation of a CQI of the second CQI type includes interference of reception of the IAB-DU to reception of the IAB-MT;

a third CQI type, where interference corresponding to the interference information used for calculation of a CQI of the third CQI type includes interference
10 of another interference source to reception of the IAB-MT;

a fourth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type includes a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

15 a fifth CQI type, where interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type includes a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; where

the another interference source is interference other than the interference
20 of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

[00151] Optionally, the target CQI type is determined in at least one of the following manners:

being specified by a protocol;

being configured by the IAB node or a CU;

25 being dynamically indicated by the IAB node or the CU; and

being determined by the child IAB node.

[00152] Optionally, if the target CQI type is configured by the IAB node or the CU, the IAB node further includes:

a first sending module, configured to send CSI report configuration information to the child IAB node, where the CSI report configuration information carries the target CQI type.

5 [00153] Optionally, the CSI report configuration information includes a CSI report quantity field, the CSI report quantity field includes at least one report CQI item, and the report CQI item is used to indicate at least one target CQI type that needs to be reported; or

10 the CSI report configuration information includes a CSI report quantity field and an indicator field, the CSI report quantity field includes at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item.

[00154] Optionally, the target CQI type carried in the CSI report configuration information is at least one of a plurality of optional CQI types specified by the protocol.

15 [00155] Optionally, if the target CQI type is dynamically indicated by the IAB node or the CU, the IAB node further includes:

a second sending module, configured to send downlink control information to the child IAB node, where the downlink control information is used to indicate at least one target CQI type that needs to be reported.

20 [00156] Optionally, the downlink control information is downlink control information that triggers aperiodic or semi-static CSI reporting.

[00157] Optionally, the determining module is configured to obtain the target CQI type carried in the reported CQI.

[00158] Optionally, the IAB node further includes:

25 a third sending module, configured to send CSI report configuration information to the child IAB node, where the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

30 [00159] Optionally, the determining module is configured to determine, based on configuration of a measurement resource, the target CQI type of the reported CQI,

where the measurement resource includes at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.

[00160] Optionally, the determining module is configured to execute at least one of the following:

if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type includes at least one of the following: the first CQI type and the fourth CQI type;

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type includes at least one of the following: the second CQI type and the fifth CQI type.

[00161] The ~~terminal~~IAB_node provided in this embodiment of the present invention is capable of implementing the processes implemented by the IAB node in the method embodiment in FIG. 6. To avoid repetition, details are not described herein again.

[00162] Preferably, an embodiment of the present invention further provides an integrated access backhaul node 90, including a processor 91, a memory 92, and a computer program stored in the memory 92 and capable of running on the processor 91. When the computer program is executed by the processor 91, the processes of the foregoing embodiment of the channel quality indicator reporting method shown in FIG. 5 are implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again.

[00163] Preferably, an embodiment of the present invention further provides an integrated access backhaul node 100, including a processor 101, a memory 102, and a computer program stored in the memory 102 and capable of running on the processor 101. When the computer program is executed by the processor 101, the processes of the foregoing embodiment of the channel quality indicator reporting method shown in FIG. 6 are implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again.

[00164] An embodiment of the present invention further provides a computer-readable storage medium, where a computer program is stored in the computer-readable storage medium. When the computer program is executed by a processor, the processes of the foregoing embodiment of the channel quality indicator reporting method shown in FIG. 5 are implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again.

[00165] An embodiment of the present invention further provides a computer-readable storage medium, where a computer program is stored in the computer-readable storage medium. When the computer program is executed by a processor, the processes of the foregoing embodiment of the channel quality indicator reporting method shown in FIG. 6 are implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again.

[00166] The computer-readable storage medium is, for example, a read-only memory (Read-Only Memory, ROM), a random access memory (Random Access Memory, RAM), a magnetic disk, or an optical disc.

[00167] The processor may be one processor, or may be a collective term for a plurality of processing components. For example, the processor may be a CPU, or may be an ASIC, or is configured as one or more integrated circuits for implementing the method performed by the ~~network side device~~IAB node, for example, one or more microprocessors DSPs, or one or more field programmable gate arrays FPGAs. A storage component may be a memory, or may be a collective term for a plurality of storage components.

[00168] The memory may be a volatile memory or a non-volatile memory, or may include a volatile memory and a non-volatile memory. The non-volatile memory may be a read-only memory (Read-Only Memory, ROM), a programmable read only memory (Programmable ROM, PROM), an erasable programmable read-only
5 memory (Erasable PROM, EPROM), and an electrically erasable programmable read-only memory (Electrically EPROM, EEPROM), or flash memory. The volatile memory may be a random access memory (Random Access Memory, RAM), which is used as an external cache. As illustrative rather than restrictive description, many forms of RAM can be used, such as a static random access memory (Static RAM,
10 SRAM), a dynamic random access memory (Dynamic RAM, DRAM), a synchronous dynamic random access memory (Synchronous DRAM, SDRAM), a double data rate synchronous dynamic random access memory (Double Data Rate SDRAM, DDRSDRAM), an enhanced synchronous dynamic random access memory (Enhanced SDRAM, ESDRAM), a synchronous link dynamic random
15 access memory (Synchlink DRAM, SLDRAM), and a direct Rambus random access memory (Direct Rambus RAM, DRRAM). The memory described in this application is intended to include but is not limited to these and any other suitable types of memories.

[00169] It should be noted that in this specification, the term "comprise",
20 "include", or any of their variants are intended to cover a non-exclusive inclusion, so that a process, a method, an article, or an apparatus that includes a list of elements not only includes those elements but also includes other elements that are not expressly listed, or further includes elements inherent to such process, method, article, or apparatus. In absence of more constraints, an element preceded by
25 "includes a..." does not preclude existence of other identical elements in the process, method, article, or apparatus that includes the element.

[00170] According to the description of the foregoing implementations, persons skilled in the art can clearly understand that the method in the foregoing embodiments may be implemented by software in addition to a necessary universal
30 hardware platform or by hardware only. In most cases, the former is a more preferred

implementation. Based on such an understanding, the technical solutions of the present invention essentially, or the part contributing to the related art, may be implemented in a form of a software product. The software product is stored in a storage medium (such as a ROM/RAM, a magnetic disk, or an optical disc), and
5 includes several instructions for instructing a terminal (which may be a mobile phone, a computer, a server, an air conditioner, a network device, or the like) to perform the methods described in the embodiments of the present invention.

[00171] The embodiments of the present invention are described above with reference to the accompanying drawings, but the present invention is not limited to
10 the foregoing implementations. The foregoing embodiments are only illustrative rather than restrictive. Inspired by the present invention, a person of ordinary skill in the art can still derive many variations without departing from the essence of the present invention and the protection scope of the claims. All these variations shall fall within the protection of the present invention.

CLAIMS

What is claimed is:

1. A channel quality indicator reporting method, ~~applied to~~performed by an integrated access backhaul IAB node, wherein the IAB node comprises an IAB node distributed unit IAB-DU and an IAB node mobile terminal IAB-MT, and the method comprises:

obtaining a target channel quality indicator CQI type that needs to be reported, wherein different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating a CQI of the target CQI type; and

calculating and reporting the CQI of the target CQI type.

2. The method according to claim 1, wherein the target CQI type comprises at least one of the following:

a first CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the first CQI type comprises interference of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the second CQI type comprises interference of reception of the IAB-DU to reception of the IAB-MT;

a third CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the third CQI type comprises interference of another interference source to reception of the IAB-MT;

a fourth CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type comprises a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

a fifth CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type comprises a sum of

interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; wherein

the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

5 3. The method according to claim 1, wherein the target CQI type is obtained in at least one of the following manners:

being specified by a protocol;

being configured by a parent IAB node or a centralized unit CU;

being dynamically indicated by the parent IAB node or the CU; and

10 being determined by the IAB node.

4. The method according to claim 3, wherein if the target CQI type is configured by the parent IAB node or the CU, the obtaining a target CQI type that needs to be reported comprises:

receiving channel state information CSI report configuration information,

15 wherein the CSI report configuration information carries the target CQI type;

or

wherein if the target CQI type is dynamically indicated by the parent IAB node or the CU, the obtaining a target CQI type that needs to be reported comprises:

20 receiving downlink control information, wherein the downlink control information is used to indicate at least one target CQI type that needs to be reported.

5. The method according to claim 4, wherein

the CSI report configuration information comprises a CSI report quantity field, the CSI report quantity field comprises at least one report CQI item, and the report CQI item indicates at least one target CQI type that needs to be reported; or

25 the CSI report configuration information comprises a CSI report quantity field and an indicator field, the CSI report quantity field comprises at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item; ~~or~~

~~6. The method according to claim 3, wherein if the target CQI type is dynamically indicated by the parent IAB node or the CU, the obtaining a target CQI type that needs to be reported comprises:~~

~~receiving downlink control information, wherein the downlink control information is used to indicate at least one target CQI type that needs to be reported.~~

~~7. The method according to claim 6, wherein the downlink control information is downlink control information that triggers aperiodic or semi-static CSI reporting.~~

~~86. The method according to claim 3, wherein the calculating and reporting the CQI of the target CQI type comprises:~~

~~having the target CQI type carried in the CQI for reporting.~~

~~97. The method according to claim 68, before the calculating and reporting the CQI of the target CQI type, further comprising:~~

~~obtaining CSI report configuration information, wherein the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.~~

~~108. The method according to claim 2, wherein the obtaining a target CQI type that needs to be reported comprises:~~

~~obtaining, based on configuration of a measurement resource, the target CQI type that needs to be reported, wherein the measurement resource comprises at least one of the following: a channel measurement resource, an interference measurement resource, and a cross-link interference measurement resource.~~

~~911. The method according to claim 108, wherein the obtaining, based on configuration of a measurement resource, the target CQI type that needs to be reported comprises at least one of the following:~~

~~if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type comprises at least one of the following: the first CQI type and the fourth CQI type;~~

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type comprises at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type comprises at least one of the following: the second CQI type and the fifth CQI type.

1210. A channel quality indicator reporting method, ~~applied to~~performed by an integrated access backhaul IAB node and comprising:

receiving a channel quality indicator CQI reported by a child IAB node, wherein the child IAB node comprises an IAB node distributed unit IAB-DU and an IAB node mobile terminal IAB-MT; and

determining a target CQI type of the reported CQI, wherein different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.

1311. The method according to claim 1210, wherein the target CQI type comprises at least one of the following:

a first CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the first CQI type comprises interference of transmission of the IAB-DU to reception of the IAB-MT;

a second CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the second CQI type comprises interference of reception of the IAB-DU to reception of the IAB-MT;

a third CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the third CQI type comprises interference of another interference source to reception of the IAB-MT;

a fourth CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the fourth CQI type comprises a sum of interference of transmission of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; and

5 a fifth CQI type, wherein interference corresponding to the interference information used for calculation of a CQI of the fifth CQI type comprises a sum of interference of reception of the IAB-DU to reception of the IAB-MT and interference of another interference source to reception of the IAB-MT; wherein

the another interference source is interference other than the interference of transmission and/or reception of the IAB-DU to reception of the IAB-MT.

~~44~~12. The method according to claim ~~42~~10, wherein the target CQI type is determined in at least one of the following manners:

being specified by a protocol;

being configured by the IAB node or a centralized unit CU;

15 being dynamically indicated by the IAB node or the CU; and

being determined by the child IAB node.

~~45~~13. The method according to claim ~~44~~12, wherein if the target CQI type is configured by the IAB node or the CU, before the receiving a CQI reported by a child IAB node, the method further comprises:

20 sending channel state information CSI report configuration information to the child IAB node, wherein the CSI report configuration information carries the target CQI type;

or

25 wherein if the target CQI type is dynamically indicated by the IAB node or the CU, before the receiving a CQI reported by a child IAB node, the method further comprises:

sending downlink control information to the child IAB node, wherein the downlink control information is used to indicate at least one target CQI type that needs to be reported.

30 ~~46~~14. The method according to claim ~~45~~13, wherein

the CSI report configuration information comprises a CSI report quantity field, the CSI report quantity field comprises at least one report CQI item, and the report CQI item indicates at least one target CQI type that needs to be reported; or

the CSI report configuration information comprises a CSI report quantity field
5 and an indicator field, the CSI report quantity field comprises at least one report CQI item, and the indicator field is used to indicate at least one target CQI type corresponding to the report CQI item; or;

~~17. The method according to claim 14, if the target CQI type is dynamically indicated by the IAB node or the CU, before the receiving a CQI reported by a child IAB node, further comprising:~~
10 ~~IAB node, further comprising:~~

~~sending downlink control information to the child IAB node, wherein the downlink control information is used to indicate at least one target CQI type that needs to be reported.~~

~~18. The method according to claim 17,~~ wherein the downlink control
15 information is downlink control information that triggers aperiodic or semi-static CSI reporting.

~~19~~15. The method according to claim ~~12~~24, wherein the determining a target CQI type of the reported CQI comprises:

obtaining the target CQI type carried in the reported CQI.

~~20~~20~~16~~. The method according to claim ~~19~~15, before the determining a target CQI type of the reported CQI, further comprising:

sending CSI report configuration information to the child IAB node, wherein the CSI report configuration information carries an indicator indicating whether the target CQI type is carried in the CQI for reporting.

~~21~~21~~17~~. The method according to claim ~~13~~11, wherein the determining a target CQI type of the reported CQI comprises:

determining, based on configuration of a measurement resource, the target CQI type of the reported CQI, wherein the measurement resource comprises at least one of the following: a channel measurement resource, an interference measurement
30 resource, and a cross-link interference measurement resource.

~~22~~18. The method according to claim ~~21~~17, wherein the determining, based on configuration of a measurement resource, the target CQI type of the reported CQI comprises at least one of the following:

if the channel measurement resource and/or the interference measurement resource is configured with a first time occasion, reception of the IAB-MT and transmission of the IAB-DU being at the first time occasion, determining that the target CQI type comprises at least one of the following: the first CQI type and the fourth CQI type;

if the channel measurement resource and/or the interference measurement resource is configured with a second time occasion, reception of the IAB-MT and reception of the IAB-DU being at a second time occasion, determining that the target CQI type comprises at least one of the following: the second CQI type and the fifth CQI type; and

if the interference measurement resource configuration overlaps the cross-link interference measurement resource configuration, determining that the target CQI type comprises at least one of the following: the second CQI type and the fifth CQI type.

~~23. An integrated access backhaul node, comprising:~~

~~a first obtaining module, configured to obtain a target CQI type that needs to be reported, wherein different interference information is used for calculating CQIs of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating a CQI of the target CQI type; and~~

~~a reporting module, configured to calculate and report the CQI of the target CQI type.~~

~~24. An integrated access backhaul node, comprising:~~

~~a receiving module, configured to receive a CQI reported by a child IAB node, wherein the child IAB node comprises an IAB-DU and an IAB-MT; and~~

~~a determining module, configured to determine a target CQI type of the reported CQI, wherein different interference information is used for calculating CQIs~~

~~of different target CQI types, and interference of the IAB-DU to reception of the IAB-MT is considered in interference information used for calculating the CQI of the target CQI type.~~

~~25~~19. An integrated access backhaul node, comprising a processor, a memory, and a computer program stored in the memory and capable of running on the processor, wherein when the computer program is executed by the processor, the steps of the channel quality indicator reporting method according to any one of claims 1 to ~~11~~9 are implemented, or when the computer program is executed by the processor, the steps of the channel quality indicator reporting method according to any one of claims ~~12-10~~12-10 to ~~22-18~~22-18 are implemented.

~~26~~20. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is executed by a processor, the steps of the channel quality indicator reporting method according to any one of claims 1 to ~~11~~9 are implemented, or when the computer program is executed by a processor, the steps of the channel quality indicator reporting method according to any one of claims ~~12-10~~12-10 to ~~22-18~~22-18 are implemented.

~~27. A computer program product, wherein the computer program product is executed by at least one processor so as to implement the steps of the channel quality indicator reporting method according to any one of claims 1 to 11 or the steps of the channel quality indicator reporting method according to any one of claims 12 to 22.~~

~~28. An integrated access backhaul node, configured to perform the steps of the channel quality indicator reporting method according to any one of claims 1 to 11 or the steps of the channel quality indicator reporting method according to any one of claims 12 to 22.~~