MEASUREMENT REPORTING METHOD, APPARATUS, AND SYSTEM

[0001] This application claims priorities to Chinese Patent Application No. 202410407135.3, filed with the China National Intellectual Property Administration on April 3, 2024 and entitled "MEASUREMENT REPORTING METHOD, APPARATUS, AND SYSTEM", and to Chinese Patent Application No. 202410574533.4, filed with the China National Intellectual Property Administration on May 9, 2024 and entitled "MEASUREMENT REPORTING METHOD, APPARATUS, AND SYSTEM", both of which are incorporated herein by reference in their entireties.

TECHNICAL FIELD

[0002] This application relates to the field of communication technologies, and in particular, to a measurement reporting method, an apparatus, and a system.

BACKGROUND

[0003] In a subband fullduplex (subband fullduplex, SBFD) solution, one carrier may be divided into a plurality of subbands, one of two adjacent subbands may be used for uplink transmission, and the other subband may be used for downlink transmission. Leakage of a signal power in a subband to another adjacent subband causes interference between an uplink (uplink, UL) and a downlink (downlink, DL), that is, cross link interference (cross link interference, CLI).

[0004] Currently, a CLI measurement and reporting method is not clearly specified.

SUMMARY

[0005] Embodiments of this application provide a measurement reporting method, an apparatus, and a system, used for CLI measurement and reporting.

[0006] To achieve the foregoing purpose, embodiments of this application adopt the following technical solutions:

[0007] According to a first aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a terminal device, and may be a module applied to the terminal device, for example, a chip or a system on a chip. In other words, the method may be applied to a terminal device side. The measurement reporting method includes: receiving first configuration information, where the first configuration information is used to

configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and sending at least one of the one or more first-type measurement reports based on the first configuration information.

[0008] In the measurement reporting method provided in this embodiment of this application, a CLI measurement reporting method between terminal devices is specified, thereby providing a basis for specific implementation on a network device side and a terminal device side. The measurement reporting method may be reused with a current CSI measurement reporting method, so that an implementation process of CLI measurement reporting can be simplified.

[0009] With reference to the foregoing first aspect, in one possible implementation, one first-type measurement report includes only CLI measurement information between the terminal devices.

[0010] With reference to the foregoing first aspect, in one possible implementation, a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1. For example, when the CLI measurement information includes only the CLI-RSSI, the quantity of CPUs corresponding to one first-type measurement report may be greater than 0 and less than 1. Because measurement of the CLI-RSSI is relatively easy, when the CLI measurement information includes only the CLI-RSSI, the quantity of CPUs corresponding to one first-type measurement report may be set to a relatively small value.

[0011] With reference to the foregoing first aspect, in one possible implementation, one first-type measurement report includes both CSI measurement information and CLI measurement information between the terminal devices.

[0012] With reference to the foregoing first aspect, in one possible implementation, a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that includes only the CSI measurement information. In this solution, one first-type measurement report not only involves computation or processing of the CSI measurement information, but also involves computation or processing of the CLI measurement information. Therefore, one first-type measurement report occupies more CPUs.

[0013] With reference to the foregoing first aspect, in one possible implementation, the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1. For example, the second value may be 0.5 or 1.

[0014] With reference to the foregoing first aspect, in one possible implementation, the method further includes: receiving a first message, where the first message is used to trigger at least one first-type measurement report; and a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to the start of the 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[0015] With reference to the foregoing first aspect, in one possible implementation, the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device. In this solution, the CLI measurement between the terminal devices is beam-based measurement. For example, a measurement resource used for the CLI measurement is configured by using an SRS resource set as a granularity. The SRS resource set includes a plurality of SRS resources, and each SRS resource is associated with a plurality of Type D QCL relationships. Alternatively, for example, only one SRS resource is configured, and the SRS resource is associated with a plurality of Type D QCL relationships. In this case, a value of the first latency may reuse a value of Z_3 from Table 2 in a CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_3' from Table 2 in the CSI measurement and reporting mechanism.

[0016] With reference to the foregoing first aspect, in one possible implementation, the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following

relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[0017] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[0018] In this solution, the CLI measurement between the terminal devices is not beam-based measurement. For example, only one SRS resource is configured, and the SRS resource is associated with one Type D QCL relationship. In this case, a value of the first latency may reuse a value of Z_1 from Table 1 or Table 2 in the CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_1' from Table 1 or Table 2 in the CSI measurement and reporting mechanism.

[0019] With reference to the foregoing first aspect, in one possible implementation, the method further includes: sending first indication information, where the first indication information indicates a quantity of CPUs corresponding to one first-type measurement report.

[0020] With reference to the foregoing first aspect, in one possible implementation, the CLI measurement information includes at least one of the following: a sounding reference signal SRS-reference signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, where the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

[0021] With reference to the foregoing first aspect, in one possible implementation, the CSI measurement information includes at least one of the following: a layer L1-reference signal

received power RSRP, an L1-signal to interference plus noise ratio SINR, a channel quality indicator CQI, a rank indication RI, a precoding matrix indicator PMI, a layer indicator LI, a CSI-RS resource indicator CRI, a synchronization signal and physical broadcast channel block resource indicator SSBRI, or a time domain channel property TDCP. In this solution, the CLI measurement information is different from the CSI measurement information. In other words, a measurement quantity of the CLI is different from a measurement quantity of the CSI, or a reporting quantity of the CLI is different from a reporting quantity of the CSI.

[0022] With reference to the foregoing first aspect, in one possible implementation, the method further includes: sending second indication information or third indication information, where the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices. In this solution, the terminal device may report capability information of the terminal device to a network device.

[0023] According to a second aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a terminal device, and may be a module applied to the terminal device, for example, a chip or a system on a chip. In other words, the method may be applied to a terminal device side. The measurement reporting method includes: performing channel state information CSI measurement on a subband fullduplex SBFD time unit, to obtain a measurement result, where the measurement result is obtained based on cross link interference CLI measurement information between terminal devices; and sending a CSI reporting message, where the CSI reporting message includes the measurement result.

[0024] In the measurement reporting method provided in this embodiment of this application, the terminal device performs CSI measurement on an SBFD time unit, and CLI measurement information between the terminal devices is considered in an obtained measurement result, so that the CLI measurement information can be implicitly reported to a network device. The network device may obtain the CLI measurement information based on the CSI reporting message including the CLI measurement information and the CSI reporting message including only the CSI measurement information.

[0025] With reference to the foregoing second aspect, in one possible implementation, performing CSI measurement on the SBFD time unit includes: performing CSI measurement on a first measurement resource, where the first measurement resource includes the SBDF time unit in time domain, and the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; or the first measurement resource is a time-frequency resource dedicated to CLI measurement between the terminal devices. In this solution,

the first measurement resource may be, for example, at least one of a CSI-RS resource currently used for channel measurement, CSI-IM used for interference measurement, or an NZP CSI-RS used for interference measurement. Alternatively, the first measurement resource may be, for example, a CLI-RSSI measurement resource dedicated to CLI-RSSI measurement, or an SRS resource dedicated to SRS-RSRP measurement.

[0026] With reference to the foregoing second aspect, in one possible implementation, the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; and a quantity of channel state information processing units CPUs corresponding to the CSI reporting message is the same as a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[0027] With reference to the foregoing second aspect, in one possible implementation, the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices; and a quantity of CPUs corresponding to the CSI reporting message is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result. In this solution, in a process of generating the CSI reporting message, the terminal device not only needs to measure CSI on the time-frequency resource currently used for channel measurement or interference measurement, but also needs to measure CLI on the first measurement resource. Therefore, complexity of generating the CSI reporting message by the UE increases, that is, the quantity of CPUs corresponding to the CSI reporting message increases.

[0028] With reference to the foregoing second aspect, in one possible implementation, the quantity of CPUs corresponding to the CSI reporting message meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1. For example, the second value may be 0.5 or 1.

[0029] With reference to the foregoing second aspect, in one possible implementation, before performing CSI measurement on the SBFD time unit, the method further includes: receiving a first message, where the first message is used to trigger the CSI measurement on the SBFD time unit; a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1^{st} symbol occupied by a channel carrying the measurement result is a first latency; a time interval from an end of the last symbol in the first measurement resource to a start of the 1^{st} symbol occupied by the channel carrying the measurement result is a second latency; and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[0030] With reference to the foregoing second aspect, in one possible implementation, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following

relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[0031] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[0032] In this solution, a value of the first latency may reuse a value of Z_1 from Table 1 or Table 2 in a CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_1' from Table 1 or Table 2 in the CSI measurement and reporting mechanism.

[0033] With reference to the foregoing second aspect, in one possible implementation, the method further includes: sending first indication information, where the first indication information indicates a quantity of CPUs corresponding to the CSI reporting message.

[0034] With reference to the foregoing second aspect, in one possible implementation, the CSI reporting message includes a signal to interference plus noise ratio SINR and/or a channel quality indicator CQI. In this solution, a measurement quantity of the CLI is the same as a measurement quantity of the CSI, or a reporting quantity of the CLI is the same as a reporting quantity of the CSI.

[0035] According to a third aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a terminal device, and may be a module applied to the terminal device, for example, a chip or a system on a chip. In other words, the method may be applied to a terminal device side. The measurement reporting method includes: receiving configuration information from a network device, where the configuration information is used to configure a first time-frequency resource for a terminal device, the first time-frequency resource is not used for uplink channel/signal transmission, and the uplink channel/signal transmission may be a PUSCH or a PUCCH.

[0036] With reference to the foregoing third aspect, in one possible implementation, when the first time-frequency resource overlaps a time-frequency resource of one PUSCH, rate matching is performed on the PUSCH on a time-frequency resource that is in the first time-frequency resource and overlaps the time-frequency resource of the PUSCH. The rate matching is a process of selecting, based on the time-frequency resource available for the PUSCH, a coded bit from coded bits obtained by performing channel coding on data carried on the PUSCH. An advantage of the solution of the present disclosure is that because the terminal device does not send a PUSCH on the first time-frequency resource, the network device may perform channel or interference measurement on such time-frequency resources, which is beneficial for the network device to accurately measure a channel or interference. For example, the network device may measure gNB-to-gNB CLI, to perform interference processing such as interference avoidance or suppression, so as to improve network performance.

[0037] With reference to the foregoing third aspect, in one possible implementation, the first time-frequency resource includes one or more symbols in time domain, and includes one or more subcarriers in frequency domain. In one possible implementation, the first time-frequency resource employs comb mapping in frequency domain, and the comb mapping is to perform mapping at an interval of one or more subcarriers. In this way, a peak to average power ratio (peak to average power ratio, PAPR) of the terminal device can be reduced.

[0038] With reference to the foregoing third aspect, in one possible implementation, when the PUSCH carries uplink control information (uplink control information, UCI), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the UCI, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the UCI. In another possible implementation, when the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the UCI, that is, when the first time-frequency resource includes the symbol that is in the PUSCH and that carries the UCI, the first time-frequency resource is not used for UCI transmission. For example, a modulation symbol that carries the UCI is not mapped to the first time-frequency resource, or when determining an available resource element (resource element, RE) for UCI transmission, the first time-frequency resource is excluded, or the first time-frequency resource is not an available RE for the UCI information. An advantage of the method is that an impact of the first time-frequency resource on UCI transmission can be reduced, and UCI transmission performance can be ensured.

[0039] With reference to the foregoing third aspect, in one possible implementation, when the PUSCH is configured with a phase tracking reference signal (PT-RS), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH

and that carries the PT-RS, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the PT-RS. In another possible implementation, the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource includes the symbol that is in the PUSCH and that carries the PT-RS. When the first time-frequency resource overlaps the RE occupied by the PT-RS, the RE that is in the first time-frequency resource and that overlaps the RE occupied by the PT-RS does not take effect, or the first time-frequency resource does not take effect for the PT-RS, transmission of the PT-RS may be performed on the first time-frequency resource. An advantage of the method is that an impact of the first time-frequency resource on PT-RS transmission can be reduced, and PT-RS transmission performance can be ensured.

[0040] According to a fourth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a terminal device, and may be a module applied to the terminal device, for example, a chip or a system on a chip. In other words, the method may be applied to a terminal device side. The measurement reporting method includes: receiving first configuration information, where the first configuration information is used for a terminal device to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and sending a CSI measurement report based on the first configuration information.

[0041] In the measurement reporting method provided in this embodiment of this application, a manner of configuring CSI-RS resources and performing measurement reporting on two downlink subbands that are non-contiguous in frequency domain in an SBFD slot is specified, thereby providing a basis for specific implementation on a network device side and a terminal device side.

[0042] With reference to the foregoing fourth aspect, in one possible implementation, the first configuration information is used to configure two associated CSI-RS resources, one of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

[0043] With reference to the foregoing fourth aspect, in one possible implementation, the first configuration information is used to configure a CSI-RS resource, and the CSI-RS resource includes the first CSI-RS resource and the second CSI-RS resource.

[0044] With reference to the foregoing fourth aspect, in one possible implementation, the first configuration information is used to configure one CSI-RS resource, the CSI-RS resource in the

first downlink subband in the one CSI-RS resource is the first CSI-RS resource, and the CSI-RS resource in the second downlink subband in the CSI-RS resource is the second CSI-RS resource.

[0045] With reference to the foregoing fourth aspect, in one possible implementation, the quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[0046] With reference to the foregoing fourth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[0047] With reference to the foregoing fourth aspect, in one possible implementation, the quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of CPUs corresponding to the CSI measurement report is a first value, the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[0048] With reference to the foregoing fourth aspect, in one possible implementation, a quantity of the CSI measurement reports is two, a first CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to a second CSI-RS resource.

[0049] According to a fifth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a terminal device, and may be a module applied to the terminal device, for example, a chip or a system on a chip. In other words, the method may be applied to a terminal device side. The measurement reporting method includes: receiving first configuration information, where the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and sending the one or two CSI measurement reports based on the first configuration information.

[0050] In the measurement reporting method provided in this embodiment of this application,

when CSI measurement report is associated with a periodic or semi-persistent CSI-RS resource, different manners of configuring the CSI measurement report and an associated CSI-RS resource are specified, thereby providing a basis for specific implementation on a network device side and a terminal device side.

[0051] With reference to the foregoing fifth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and a CSI-RS resource associated with the CSI measurement report, and CSI-RS transmission occasions corresponding to the CSI-RS resource are on subband fullduplex SBFD symbols or non-SBFD symbols in different slots.

[0052] With reference to the foregoing fifth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and two CSI-RS resources associated with the CSI measurement report; a CSI-RS transmission occasion corresponding to a first CSI-RS resource in the two CSI-RS resources is on SBFD symbols in different slots; a CSI-RS transmission occasion corresponding to a second CSI-RS resource in the two CSI-RS resources is on non-SBFD symbols in different slots; and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

[0053] With reference to the foregoing fifth aspect, in one possible implementation, the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on the same reporting occasion of the CSI measurement report; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[0054] With reference to the foregoing fifth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[0055] With reference to the foregoing fifth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and one CSI-RS resource associated with the two CSI measurement reports; a first CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and a second CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS

resource.

[0056] With reference to the foregoing fifth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and two CSI-RS resources; the first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and the second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; a CSI-RS transmission occasion corresponding to the first CSI-RS resource is on SBFD symbols in different slots; and a CSI-RS transmission occasion corresponding to the second CSI-RS resource is on non-SBFD symbols in different slots.

[0057] According to a sixth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a network device, and may be a module applied to the network device, for example, a chip or a system on a chip. In other words, the method may be applied to a network device side. The measurement reporting method includes: sending first configuration information, where the first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and receiving at least one of the one or more first-type measurement reports.

[0058] With reference to the foregoing sixth aspect, in one possible implementation, one first-type measurement report includes only CLI measurement information between the terminal devices.

[0059] With reference to the foregoing sixth aspect, in one possible implementation, a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

[0060] With reference to the foregoing sixth aspect, in one possible implementation, one first-type measurement report includes both CSI measurement information and CLI measurement information between the terminal devices.

[0061] With reference to the foregoing sixth aspect, in one possible implementation, a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that includes only the CSI measurement information.

[0062] With reference to the foregoing sixth aspect, in one possible implementation, the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[0063] With reference to the foregoing sixth aspect, in one possible implementation, the

method further includes: sending a first message, where the first message is used to trigger at least one first-type measurement report; and a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to a start of a 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[0064] With reference to the foregoing sixth aspect, in one possible implementation, the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device.

[0065] With reference to the foregoing sixth aspect, in one possible implementation, the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[0066] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[0067] With reference to the foregoing sixth aspect, in one possible implementation, the method further includes: receiving first indication information, where the first indication information indicates the quantity of CPUs corresponding to one first-type measurement report.

[0068] With reference to the foregoing sixth aspect, in one possible implementation, the CLI measurement information includes at least one of the following: a sounding reference signal SRS-reference signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, where the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

[0069] With reference to the foregoing sixth aspect, in one possible implementation, the CSI measurement information includes at least one of the following: a layer L1-reference signal received power RSRP, an L1-signal to interference plus noise ratio SINR, a channel quality indicator CQI, a rank indication RI, a precoding matrix indicator PMI, a layer indicator LI, a CSI-RS resource indicator CRI, a synchronization signal and physical broadcast channel block resource indicator SSBRI, or a time domain channel property TDCP.

[0070] With reference to the foregoing sixth aspect, in one possible implementation, the method further includes: receiving second indication information or third indication information, where the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices.

[0071] For technical effects brought by any one of the possible implementations of the sixth aspect, refer to the technical effects brought by the first aspect or different implementations of the first aspect. Details are not described herein again.

[0072] According to a seventh aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a network device, and may

be a module applied to the network device, for example, a chip or a system on a chip. In other words, the method may be applied to a network device side. The measurement reporting method includes: receiving a CSI reporting message, where the CSI reporting message includes a measurement result, the measurement result is obtained by a terminal device by performing channel state information CSI measurement on a subband fullduplex SBFD time unit, and the measurement result is obtained based on cross link interference CLI measurement information between terminal devices.

[0073] With reference to the foregoing seventh aspect, in one possible implementation, that the measurement result is obtained by the terminal device by performing CSI measurement on an SBFD time unit includes: the measurement result is obtained by the terminal device by performing CSI measurement on a first measurement resource, where the first measurement resource includes the SBDF time unit in time domain, and the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; or the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices.

[0074] With reference to the foregoing seventh aspect, in one possible implementation, the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; and a quantity of channel state information processing units CPUs corresponding to the CSI reporting message is the same as a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[0075] With reference to the foregoing seventh aspect, in one possible implementation, the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices; and a quantity of CPUs corresponding to the CSI reporting message is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[0076] With reference to the foregoing seventh aspect, in one possible implementation, the quantity of CPUs corresponding to the CSI reporting message meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[0077] With reference to the foregoing seventh aspect, in one possible implementation, the method further includes: sending a first message, where the first message is used to trigger the terminal device to perform CSI measurement on an SBFD time unit; a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the measurement result is a first latency; a time interval from an end of the last symbol in the first measurement resource to a start of the 1st symbol occupied by the channel

carrying the measurement result is a second latency; and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[0078] With reference to the foregoing seventh aspect, in one possible implementation, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[0079] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[0080] With reference to the foregoing seventh aspect, in one possible implementation, the method further includes: receiving first indication information, where the first indication information indicates the quantity of CPUs corresponding to the CSI reporting message.

[0081] With reference to the foregoing seventh aspect, in one possible implementation, the CSI reporting message includes a signal to interference plus noise ratio SINR and/or a channel quality indicator CQI.

[0082] For technical effects brought by any one of the possible implementations of the seventh aspect, refer to the technical effects brought by the second aspect or different implementations of the second aspect. Details are not described herein again.

[0083] According to an eighth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a network device, and may be a module applied to the network device, for example, a chip or a system on a chip. In other words, the method may be applied to a network device side. The measurement reporting method includes: sending configuration information, where the configuration information is used to configure a first time-frequency resource, the first time-frequency resource is not used for uplink

channel/signal transmission, and the uplink channel/signal transmission may be a PUSCH or a PUCCH. In one specific implementation, when the first time-frequency resource overlaps a time-frequency resource of one PUSCH, rate matching is performed on the PUSCH on a time-frequency resource that is in the first time-frequency resource and overlaps the time-frequency resource of the PUSCH. The rate matching is a process of selecting, based on the time-frequency resource available for the PUSCH, a coded bit from coded bits obtained by performing channel coding on data carried on the PUSCH.

[0084] With reference to the foregoing eighth aspect, in one possible implementation, the first time-frequency resource includes one or more symbols in time domain, and includes one or more subcarriers in frequency domain. In one possible implementation, the first time-frequency resource employs comb mapping in frequency domain, and the comb mapping is to perform mapping at an interval of one or more subcarriers. In this way, a peak to average power ratio (peak to average power ratio, PAPR) of the terminal device can be reduced.

[0085] With reference to the foregoing eighth aspect, in one possible implementation, when the PUSCH carries uplink control information (uplink control information, UCI), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the UCI, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the UCI. In another possible implementation, when the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the UCI, that is, when the first time-frequency resource includes the symbol that is in the PUSCH and that carries the UCI, the first time-frequency resource is not used for UCI transmission. For example, a modulation symbol that carries the UCI is not mapped to the first time-frequency resource, or when determining an available resource element (resource element, RE) for UCI transmission, the first time-frequency resource is excluded, or the first time-frequency resource is not an available RE for the UCI information.

[0086] With reference to the foregoing eighth aspect, in one possible implementation, when the PUSCH is configured with a phase tracking reference signal (PT-RS), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the PT-RS. In another possible implementation, the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource includes the symbol that is in the PUSCH and that carries the PT-RS. When the first time-frequency resource overlaps the RE occupied by the PT-RS, the RE that is in the first time-frequency resource and that overlaps the RE occupied by the PT-RS does not take effect, or the first time-frequency resource does not take effect for the PT-RS, transmission of the

PT-RS may be performed on the first time-frequency resource.

[0087] For technical effects brought by any one of the possible implementations of the eighth aspect, refer to the technical effects brought by the third aspect or different implementations of the third aspect. Details are not described herein again.

[0088] According to a ninth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a network device, and may be a module applied to the network device, for example, a chip or a system on a chip. In other words, the method may be applied to a network device side. The measurement reporting method includes: sending first configuration information, where the first configuration information is used for a terminal device to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and receiving a CSI measurement report.

[0089] With reference to the foregoing ninth aspect, in one possible implementation, the first configuration information is used to configure two associated CSI-RS resources, one of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

[0090] With reference to the foregoing ninth aspect, in one possible implementation, the first configuration information is used to configure a CSI-RS resource, and the CSI-RS resource includes the first CSI-RS resource and the second CSI-RS resource.

[0091] With reference to the foregoing ninth aspect, in one possible implementation, the first configuration information is used to configure a CSI-RS resource, the CSI-RS resource in the first downlink subband in the CSI-RS resource is the first CSI-RS resource, and the CSI-RS resource in the second downlink subband in the CSI-RS resource is the second CSI-RS resource.

[0092] With reference to the foregoing ninth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[0093] With reference to the foregoing ninth aspect, in one possible implementation, a quantity

of CPUs corresponding to the CSI measurement report is twice the first value.

[0094] With reference to the foregoing ninth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of CPUs corresponding to the CSI measurement report is a first value, the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[0095] With reference to the foregoing ninth aspect, in one possible implementation, a quantity of the CSI measurement reports is two, a first CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to a second CSI-RS resource.

[0096] For technical effects brought by any one of the possible implementations of the ninth aspect, refer to the technical effects brought by the fourth aspect or different implementations of the fourth aspect. Details are not described herein again.

[0097] According to a tenth aspect, a measurement reporting method is provided. An apparatus for performing the measurement reporting method may be a network device, and may be a module applied to the network device, for example, a chip or a system on a chip. In other words, the method may be applied to a network device side. The measurement reporting method includes: sending first configuration information, where the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and receiving the one or two CSI measurement reports.

[0098] With reference to the foregoing tenth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and the CSI-RS resource associated with the CSI measurement report, and CSI-RS transmission occasions corresponding to the CSI-RS resource are on subband fullduplex SBFD symbols or non-SBFD symbols in different slots.

[0099] With reference to the foregoing tenth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and two CSI-RS resources associated with the CSI measurement report; a CSI-RS transmission occasion corresponding to a first CSI-RS resource in the two CSI-RS resources is on SBFD symbols in different slots; a CSI-RS transmission occasion corresponding to a second CSI-RS resource in the

two CSI-RS resources is on non-SBFD symbols in different slots; and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

[00100] With reference to the foregoing tenth aspect, in one possible implementation, the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on the same reporting occasion of the CSI measurement report; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00101] With reference to the foregoing tenth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00102] With reference to the foregoing tenth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and a CSI-RS resource associated with the two CSI measurement reports; a first CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and a second CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS resource.

[00103] With reference to the foregoing tenth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and two CSI-RS resources; the first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and the second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; a CSI-RS transmission occasion corresponding to the first CSI-RS resource is on SBFD symbols in different slots; and a CSI-RS transmission occasion corresponding to the second CSI-RS resource is on non-SBFD symbols in different slots.

[00104] For technical effects brought by any one of the possible implementations of the tenth aspect, refer to the technical effects brought by the fifth aspect or different implementations of the fifth aspect. Details are not described herein again.

[00105] According to an eleventh aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or

means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00106] With reference to the foregoing eleventh aspect, in one possible implementation, the communication apparatus includes a sending module and a receiving module, where the receiving module is configured to receive first configuration information, the first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and the sending module is configured to send at least one of the one or more first-type measurement reports based on the first configuration information.

[00107] With reference to the foregoing eleventh aspect, in one possible implementation, one first-type measurement report includes only CLI measurement information between the terminal devices.

[00108] With reference to the foregoing eleventh aspect, in one possible implementation, a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

[00109] With reference to the foregoing eleventh aspect, in one possible implementation, one first-type measurement report includes both CSI measurement information and CLI measurement information between the terminal devices.

[00110] With reference to the foregoing eleventh aspect, in one possible implementation, a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that includes only the CSI measurement information.

[00111] With reference to the foregoing eleventh aspect, in one possible implementation, the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00112] With reference to the foregoing eleventh aspect, in one possible implementation, the receiving module is further configured to receive a first message, where the first message is used to trigger at least one first-type measurement report; and a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to a start of a 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are

determined based on a subcarrier spacing SCS.

[00113] With reference to the foregoing eleventh aspect, in one possible implementation, the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device.

[00114] With reference to the foregoing eleventh aspect, in one possible implementation, the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00115] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00116] With reference to the foregoing eleventh aspect, in one possible implementation, the sending module is further configured to send first indication information, where the first indication information indicates a quantity of CPUs corresponding to the first-type measurement report.

[00117] With reference to the foregoing eleventh aspect, in one possible implementation, the CLI measurement information includes at least one of the following: a sounding reference signal SRS-reference signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, where the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

[00118] With reference to the foregoing eleventh aspect, in one possible implementation, the CSI measurement information includes at least one of the following: a layer L1-reference signal received power RSRP, an L1-signal to interference plus noise ratio SINR, a channel quality indicator CQI, a rank indication RI, a precoding matrix indicator PMI, a layer indicator LI, a CSI-RS resource indicator CRI, a synchronization signal and physical broadcast channel block resource indicator SSBRI, or a time domain channel property TDCP.

[00119] With reference to the foregoing eleventh aspect, in one possible implementation, the sending module is further configured to send second indication information or third indication information, where the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices.

[00120] For technical effects brought by any one of the possible implementations of the eleventh aspect, refer to the technical effects brought by the first aspect or different implementations of the first aspect. Details are not described herein again.

[00121] According to a twelfth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00122] With reference to the foregoing twelfth aspect, in one possible implementation, the communication apparatus includes a measurement module and a sending module. The measurement module is configured to perform channel state information CSI measurement on a subband fullduplex SBFD time unit, to obtain a measurement result, where the measurement result

is obtained based on cross link interference CLI measurement information between terminal devices; and the sending module is configured to send a CSI reporting message, where the CSI reporting message includes the measurement result.

[00123] With reference to the foregoing twelfth aspect, in one possible implementation, the measurement module is specifically configured to perform CSI measurement on a first measurement resource, where the first measurement resource includes the SBDF time unit in time domain, and the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; or the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices.

[00124] With reference to the foregoing twelfth aspect, in one possible implementation, the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; and a quantity of channel state information processing units CPUs corresponding to the CSI reporting message is the same as a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[00125] With reference to the foregoing twelfth aspect, in one possible implementation, the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices; and a quantity of CPUs corresponding to the CSI reporting message is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[00126] With reference to the foregoing twelfth aspect, in one possible implementation, the quantity of CPUs corresponding to the CSI reporting message meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00127] With reference to the foregoing twelfth aspect, in one possible implementation, the communication apparatus further includes: a receiving module. The receiving module is configured to receive a first message, where the first message is used to trigger the measurement module to perform CSI measurement on an SBFD time unit; and a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1^{st} symbol occupied by a channel carrying the measurement result is a first latency, a time interval from an end of the last symbol in the first measurement resource to a start of the 1^{st} symbol occupied by the channel carrying the measurement result is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[00128] With reference to the twelfth aspect, in one possible implementation, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00129] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00130] With reference to the foregoing twelfth aspect, in one possible implementation, the sending module is further configured to send first indication information, where the first indication information indicates a quantity of CPUs corresponding to the CSI reporting message.

[00131] With reference to the foregoing twelfth aspect, in one possible implementation, the CSI reporting message includes a signal to interference plus noise ratio SINR and/or a channel quality indicator CQI.

[00132] For technical effects brought by any one of the possible implementations of the twelfth aspect, refer to the technical effects brought by the second aspect or different implementations of the second aspect. Details are not described herein again.

[00133] According to a thirteenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00134] With reference to the foregoing thirteenth aspect, in one possible implementation, the communication apparatus includes: a receiving module. The receiving module is configured to receive configuration information. The configuration information is used to configure a first time-frequency resource, the first time-frequency resource is not used for uplink channel/signal transmission, and the uplink channel/signal transmission may be a PUSCH or a PUCCH. In one specific implementation, when the first time-frequency resource overlaps a time-frequency

resource of one PUSCH, rate matching is performed on the PUSCH on a time-frequency resource that is in the first time-frequency resource and overlaps the time-frequency resource of the PUSCH. The rate matching is a process of selecting, based on the time-frequency resource available for the PUSCH, a coded bit from coded bits obtained by performing channel coding on data carried on the PUSCH.

[00135] With reference to the foregoing thirteenth aspect, in one possible implementation, the first time-frequency resource includes one or more symbols in time domain, and includes one or more subcarriers in frequency domain. In one possible implementation, the first time-frequency resource employs comb mapping in frequency domain, and the comb mapping is to perform mapping at an interval of one or more subcarriers. In this way, a peak to average power ratio (peak to average power ratio, PAPR) of the terminal device can be reduced.

[00136] With reference to the foregoing thirteenth aspect, in one possible implementation, when the PUSCH carries uplink control information (uplink control information, UCI), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the UCI, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the UCI. In another possible implementation, when the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the UCI, that is, when the first time-frequency resource includes the symbol that is in the PUSCH and that carries the UCI, the first time-frequency resource is not used for UCI transmission. For example, a modulation symbol that carries the UCI is not mapped to the first time-frequency resource, or when determining an available resource element (resource element, RE) for UCI transmission, the first time-frequency resource is excluded, or the first time-frequency resource is not an available RE for the UCI information.

[00137] With reference to the foregoing thirteenth aspect, in one possible implementation, when the PUSCH is configured with a phase tracking reference signal (PT-RS), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the PT-RS. In another possible implementation, the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource includes the symbol that is in the PUSCH and that carries the PT-RS. When the first time-frequency resource overlaps the RE occupied by the PT-RS, the RE that is in the first time-frequency resource and that overlaps the RE occupied by the PT-RS does not take effect, or the first time-frequency resource does not take effect for the PT-RS, transmission of the PT-RS may be performed on the first time-frequency resource.

[00138] For technical effects brought by any one of the possible implementations of the

thirteenth aspect, refer to the technical effects brought by the third aspect or different implementations of the third aspect. Details are not described herein again.

[00139] According to a fourteenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00140] With reference to the fourteenth aspect, in one possible implementation, the communication apparatus includes: a sending module and a receiving module. The receiving module is configured to receive first configuration information, where the first configuration information is used by the communication apparatus to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and the sending module is configured to send a CSI measurement report based on the first configuration information.

[00141] With reference to the foregoing fourteenth aspect, in one possible implementation, the first configuration information is used to configure two associated CSI-RS resources, one of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

[00142] With reference to the foregoing fourteenth aspect, in one possible implementation, the first configuration information is used to configure a CSI-RS resource, and the CSI-RS resource includes the first CSI-RS resource and the second CSI-RS resource.

[00143] With reference to the foregoing fourteenth aspect, in one possible implementation, the first configuration information is used to configure one CSI-RS resource, the CSI-RS resource in the first downlink subband in the one CSI-RS resource is the first CSI-RS resource, and the CSI-RS resource in the second downlink subband in the CSI-RS resource is the second CSI-RS resource.

[00144] With reference to the foregoing fourteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the

measurement result corresponding to the second CSI-RS resource.

[00145] With reference to the foregoing fourteenth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00146] With reference to the foregoing fourteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of CPUs corresponding to the CSI measurement report is a first value, the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00147] With reference to the foregoing fourteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is two, a first CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to a second CSI-RS resource.

[00148] For technical effects brought by any one of the possible implementations of the fourteenth aspect, refer to the technical effects brought by the fourth aspect or different implementations of the fourth aspect. Details are not described herein again.

[00149] According to a fifteenth aspect, a communication apparatus is provided to implement the foregoing methods. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00150] With reference to the foregoing fifteenth aspect, in one possible implementation, the communication apparatus includes: a sending module and a receiving module. The receiving module is configured to receive first configuration information, where the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and the sending module is configured to send the one or two CSI measurement reports based on the first configuration information.

[00151] With reference to the foregoing fifteenth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and a CSI-RS resource associated with the CSI measurement report, and CSI-RS transmission occasions corresponding to the CSI-RS resource are on subband fullduplex SBFD symbols or non-SBFD

symbols in different slots.

[00152] With reference to the foregoing fifteenth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and two CSI-RS resources associated with the CSI measurement report; a CSI-RS transmission occasion corresponding to a first CSI-RS resource in the two CSI-RS resources is located on SBFD symbols in different slots; a CSI-RS transmission occasion corresponding to a second CSI-RS resource in the two CSI-RS resources is on non-SBFD symbols in different slots; and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

[00153] With reference to the foregoing fifteenth aspect, in one possible implementation, the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on the same reporting occasion of the CSI measurement report; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00154] With reference to the foregoing fifteenth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00155] With reference to the foregoing fifteenth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and a CSI-RS resource associated with the two CSI measurement reports; a first CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and a second CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS resource.

[00156] With reference to the foregoing fifteenth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and two CSI-RS resources; the first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and the second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; a CSI-RS transmission occasion corresponding to the first CSI-RS resource is on SBFD symbols in different slots; and a CSI-RS transmission occasion corresponding to the second CSI-

RS resource is on non-SBFD symbols in different slots.

[00157] For technical effects brought by any one of the possible implementations of the fifteenth aspect, refer to the technical effects brought by the fifth aspect or different implementations of the fifth aspect. Details are not described herein again.

[00158] According to a sixteenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00159] With reference to the foregoing sixteenth aspect, in one possible implementation, the communication apparatus includes a sending module and a receiving module, where the sending module is configured to send first configuration information, the first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and the receiving module is configured to receive at least one of the one or more first-type measurement reports.

[00160] With reference to the foregoing sixteenth aspect, in one possible implementation, one first-type measurement report includes only CLI measurement information between the terminal devices.

[00161] With reference to the foregoing sixteenth aspect, in one possible implementation, a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

[00162] With reference to the foregoing sixteenth aspect, in one possible implementation, one first-type measurement report includes both CSI measurement information and CLI measurement information between the terminal devices.

[00163] With reference to the foregoing sixteenth aspect, in one possible implementation, a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that includes only the CSI measurement information.

[00164] With reference to the foregoing sixteenth aspect, in one possible implementation, the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00165] With reference to the foregoing sixteenth aspect, in one possible implementation, the sending module is further configured to send a first message, where the first message is used to

trigger at least one first-type measurement report; and a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to a start of a 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[00166] With reference to the foregoing sixteenth aspect, in one possible implementation, the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device.

[00167] With reference to the foregoing sixteenth aspect, in one possible implementation, the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00168] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16

μ	Z	Z'
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00169] With reference to the foregoing sixteenth aspect, in one possible implementation, the receiving module is further configured to receive first indication information, where the first indication information indicates a quantity of CPUs corresponding to the first-type measurement report.

[00170] With reference to the foregoing sixteenth aspect, in one possible implementation, the CLI measurement information includes at least one of the following: a sounding reference signal SRS-reference signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, where the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

[00171] With reference to the foregoing sixteenth aspect, in one possible implementation, the CSI measurement information includes at least one of the following: an L1-reference signal received power RSRP, an L1-signal to interference plus noise ratio SINR, a channel quality indicator CQI, a rank indication RI, a precoding matrix indicator PMI, a layer indicator LI, a CSI-RS resource indicator CRI, a synchronization signal and a physical broadcast channel block resource indicator SSBRI, or a time domain channel property TDCP. In this solution, the CLI measurement information is different from the CSI measurement information. In other words, a measurement quantity of the CLI is different from a measurement quantity of the CSI, or a reporting quantity of the CLI is different from a reporting quantity of the CSI.

[00172] With reference to the foregoing sixteenth aspect, in one possible implementation, the receiving module is further configured to receive second indication information or third indication information, where the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices.

[00173] For technical effects brought by any one of the possible implementations of the sixteenth aspect, refer to the technical effects brought by the first aspect or different

implementations of the first aspect. Details are not described herein again.

[00174] According to a seventeenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00175] With reference to the foregoing seventeenth aspect, in one possible implementation, the communication apparatus includes: a receiving module. The receiving module is configured to receive a CSI reporting message, where the CSI reporting message includes a measurement result, the measurement result is obtained by a terminal device by performing channel state information CSI measurement on a subband fullduplex SBFD time unit, and the measurement result is obtained based on cross link interference CLI measurement information between terminal devices.

[00176] With reference to the foregoing seventeenth aspect, in one possible implementation, that the measurement result is obtained by the terminal device by performing CSI measurement on an SBFD time unit includes: the measurement result is obtained by the terminal device by performing CSI measurement on a first measurement resource, where the first measurement resource includes the SBDF time unit in time domain, and the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; or the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices.

[00177] With reference to the foregoing seventeenth aspect, in one possible implementation, the first measurement resource is a time-frequency resource for performing channel measurement or interference measurement; and a quantity of channel state information processing units CPUs corresponding to the CSI reporting message is the same as a first value, and the first value is a quantity of CPUs corresponding to the CSI reporting message that includes only a CSI measurement result.

[00178] With reference to the foregoing seventeenth aspect, in one possible implementation, the first measurement resource is a time-frequency resource dedicated to CLI measurement information between the terminal devices; and a quantity of CPUs corresponding to the CSI reporting message is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI reporting message that includes only a CSI measurement result.

[00179] With reference to the foregoing seventeenth aspect, in one possible implementation, the quantity of CPUs corresponding to the CSI reporting message meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00180] With reference to the foregoing seventeenth aspect, in one possible implementation,

the communication apparatus further includes: a sending module. The sending module is configured to send a first message, where the first message is used to trigger the terminal device to perform CSI measurement on an SBFD time unit; a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the measurement result is a first latency; a time interval from an end of the last symbol in the first measurement resource to a start of the 1st symbol occupied by the channel carrying the measurement result is a second latency; and the first latency and the second latency are determined based on a subcarrier spacing SCS.

[00181] With reference to the foregoing seventeenth aspect, in one possible implementation, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00182] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00183] With reference to the foregoing seventeenth aspect, in one possible implementation, the receiving module is further configured to receive first indication information, where the first indication information indicates a quantity of CPUs corresponding to the CSI reporting message.

[00184] With reference to the foregoing seventeenth aspect, in one possible implementation, the CSI reporting message includes a signal to interference plus noise ratio SINR and/or a channel quality indicator CQI.

[00185] For technical effects brought by any one of the possible implementations of the seventeenth aspect, refer to the technical effects brought by the second aspect or different implementations of the second aspect. Details are not described herein again.

[00186] According to an eighteenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00187] With reference to the foregoing eighteenth aspect, in one possible implementation, the communication apparatus includes: a sending module. The sending module is configured to send configuration information. The configuration information is used to configure a first time-frequency resource, the first time-frequency resource is not used for uplink channel/signal transmission, and the uplink channel/signal transmission may be a PUSCH or a PUCCH. In one specific implementation, when the first time-frequency resource overlaps a time-frequency resource of one PUSCH, rate matching is performed on the PUSCH on a time-frequency resource that is in the first time-frequency resource and overlaps the time-frequency resource of the PUSCH. The rate matching is a process of selecting, based on the time-frequency resource available for the PUSCH, a coded bit from coded bits obtained by performing channel coding on data carried on the PUSCH.

[00188] With reference to the foregoing eighteenth aspect, in one possible implementation, the first time-frequency resource includes one or more symbols in time domain, and includes one or more subcarriers in frequency domain. In one possible implementation, the first time-frequency resource employs comb mapping in frequency domain, and the comb mapping is to perform mapping at an interval of one or more subcarriers. In this way, a peak to average power ratio (peak to average power ratio, PAPR) of the terminal device can be reduced.

[00189] With reference to the foregoing eighteenth aspect, in one possible implementation, when the PUSCH carries uplink control information (uplink control information, UCI), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the UCI, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the UCI. In another possible implementation, when the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the UCI, that is, when the first time-frequency resource includes the symbol that is in the PUSCH and that carries the UCI, the first time-frequency resource is not used for UCI transmission. For example, a modulation symbol that carries the UCI is not mapped to the first time-frequency resource, or when determining an available resource element (resource element, RE) for UCI transmission, the first time-frequency resource is excluded, or the first time-frequency resource is not an available RE for the UCI information.

[00190] With reference to the foregoing eighteenth aspect, in one possible implementation,

when the PUSCH is configured with a phase tracking reference signal (PT-RS), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource does not include the symbol that is in the PUSCH and that carries the PT-RS. In another possible implementation, the first time-frequency resource overlaps the symbol that is in the PUSCH and that carries the PT-RS, or the first time-frequency resource includes the symbol that is in the PUSCH and that carries the PT-RS. When the first time-frequency resource overlaps the RE occupied by the PT-RS, the RE that is in the first time-frequency resource and that overlaps the RE occupied by the PT-RS does not take effect, or the first time-frequency resource does not take effect for the PT-RS, transmission of the PT-RS may be performed on the first time-frequency resource.

[00191] For technical effects brought by any one of the possible implementations of the eighteenth aspect, refer to the technical effects brought by the third aspect or different implementations of the third aspect. Details are not described herein again.

[00192] According to a nineteenth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00193] With reference to the nineteenth aspect, in one possible implementation, the communication apparatus includes: a sending module and a receiving module. The sending module is configured to send first configuration information, where the first configuration information is used for a terminal device to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and the receiving module is configured to receive a CSI measurement report.

[00194] With reference to the foregoing nineteenth aspect, in one possible implementation, the first configuration information is used to configure two associated CSI-RS resources, one of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

[00195] With reference to the foregoing nineteenth aspect, in one possible implementation, the first configuration information is used to configure a CSI-RS resource, and the CSI-RS resource includes the first CSI-RS resource and the second CSI-RS resource.

[00196] With reference to the foregoing nineteenth aspect, in one possible implementation, the

first configuration information is used to configure one CSI-RS resource, the CSI-RS resource in the first downlink subband in the one CSI-RS resource is the first CSI-RS resource, and the CSI-RS resource in the second downlink subband in the CSI-RS resource is the second CSI-RS resource.

[00197] With reference to the foregoing nineteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00198] With reference to the foregoing nineteenth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00199] With reference to the foregoing nineteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and a quantity of CPUs corresponding to the CSI measurement report is a first value, the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00200] With reference to the foregoing nineteenth aspect, in one possible implementation, a quantity of the CSI measurement reports is two, a first CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to a second CSI-RS resource.

[00201] For technical effects brought by any one of the possible implementations of the nineteenth aspect, refer to the technical effects brought by the fourth aspect or different implementations of the fourth aspect. Details are not described herein again.

[00202] According to a twentieth aspect, a communication apparatus is provided to implement the foregoing method. The communication apparatus includes a corresponding module, unit, or means for implementing the foregoing method. The module, unit, or means may be implemented by hardware, software, or hardware executing corresponding software. The hardware or the software includes one or more modules or units corresponding to the foregoing functions.

[00203] With reference to the foregoing twentieth aspect, in one possible implementation, the communication apparatus includes: a sending module and a receiving module. The sending module is configured to send first configuration information, where the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and the receiving module is configured to receive the one or two CSI measurement reports.

[00204] With reference to the foregoing twentieth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and a CSI-RS resource associated with the CSI measurement report, and CSI-RS transmission occasions corresponding to the CSI-RS resource are on subband fullduplex SBFD symbols or non-SBFD symbols in different slots.

[00205] With reference to the foregoing twentieth aspect, in one possible implementation, the first configuration information is used to configure a CSI measurement report and two CSI-RS resources associated with the CSI measurement report; a CSI-RS transmission occasion corresponding to a first CSI-RS resource in the two CSI-RS resources is on SBFD symbols in different slots; CSI-RS transmission occasions corresponding to a second CSI-RS resource in the two CSI-RS resources are on non-SBFD symbols in different slots; and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

[00206] With reference to the foregoing twentieth aspect, in one possible implementation, the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on the same reporting occasion of the CSI measurement report; and a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00207] With reference to the foregoing twentieth aspect, in one possible implementation, a quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00208] With reference to the foregoing twentieth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and a CSI-RS resource associated with the two CSI measurement reports; a first CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and a second

CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS resource.

[00209] With reference to the foregoing twentieth aspect, in one possible implementation, the first configuration information is used to configure two CSI measurement reports and two CSI-RS resources; the first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and the second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; a CSI-RS transmission occasion corresponding to the first CSI-RS resource is on SBFD symbols in different slots; and a CSI-RS transmission occasion corresponding to the second CSI-RS resource is on non-SBFD symbols in different slots.

[00210] For technical effects brought by any one of the possible implementations of the twentieth aspect, refer to the technical effects brought by the fifth aspect or different implementations of the fifth aspect. Details are not described herein again.

[00211] According to a twenty-first aspect, a communication apparatus is provided, including a processor. The processor is configured to: after coupling to a memory and reading computer instructions stored in the memory, perform the method according to the first aspect to the tenth aspect based on the instructions.

[00212] With reference to the foregoing twenty-first aspect, in one possible implementation, the communication apparatus further includes a memory. The memory is configured to store computer instructions.

[00213] With reference to the foregoing twenty-first aspect, in one possible implementation, the communication apparatus further includes a communication interface. The communication interface is used by the communication apparatus to communicate with another device. For example, the communication interface may be a transceiver, an input/output interface, an interface circuit, an output circuit, an input circuit, a pin, a related circuit, or the like.

[00214] With reference to the foregoing twenty-first aspect, in one possible implementation, the communication apparatus may be a chip or a system on a chip. When the communication apparatus is the system on a chip, the communication apparatus may include a chip, or may include a chip and another discrete device.

[00215] With reference to the twenty-first aspect, in one possible implementation, when the communication apparatus is a chip or a system on a chip, the foregoing communication interface may be an input/output interface, an interface circuit, an output circuit, an input circuit, a pin, a related circuit, or the like on the chip or the system on a chip. The processor may also be embodied as a processing circuit or a logic circuit.

[00216] According to a twenty-second aspect, a communication system is provided, including a terminal device that performs the method according to the foregoing first aspect and a network device that performs the method according to the foregoing sixth aspect, or including a terminal device that performs the method according to the foregoing second aspect and a network device that performs the method according to the foregoing seventh aspect, or including a terminal device that performs the method according to the foregoing third aspect and a network device that performs the method according to the foregoing eighth aspect, or including a terminal device that performs the method according to the foregoing fourth aspect and a network device that performs the method according to the foregoing ninth aspect, or including a terminal device that performs the method according to the foregoing fifth aspect and a network device that performs the method according to the foregoing tenth aspect.

[00217] According to a twenty-third aspect, a computer-readable storage medium is provided. The computer-readable storage medium stores instructions; and when the instructions are executed on a computer, the computer is enabled to perform the method according to any one of the foregoing first aspect to tenth aspect.

[00218] According to a twenty-fourth aspect, a computer program product including instructions is provided. When the computer program product is executed on a computer, the computer is enabled to perform the method according to any one of the foregoing first aspect to tenth aspect.

[00219] According to a twenty-fifth aspect, a chip is provided. The chip includes: a processor. The processor is configured to execute instructions, to enable an apparatus including the chip to perform the method according to any one of the foregoing first aspect to tenth aspect.

[00220] With reference to the foregoing twenty-fifth aspect, in one possible implementation, the chip further includes a memory. The memory is configured to store instructions.

[00221] For technical effects brought by any one of the possible implementations of the ninth aspect to the twenty-fifth aspect, refer to technical effects brought by the foregoing first aspect, second aspect, third aspect, fourth aspect, or fifth aspect and different implementations thereof. Details are not described herein again.

BRIEF DESCRIPTION OF DRAWINGS

[00222] FIG. 1 is a diagram of time-frequency resource allocation in a TDD system;

[00223] FIG. 2 is a diagram of time-frequency resource allocation in an SBFD solution;

[00224] FIG. 3 is a diagram of time-frequency resource allocation in another SBFD solution;

[00225] FIG. 4 is a diagram of different types of CFIs in an SBFD solution;

[00226] FIG. 5 is a diagram of a minimum processing latency of a UE defined in a CSI measurement and reporting mechanism;

[00227] FIG. 6 is a diagram of an architecture of a communication system according to an embodiment of this application;

[00228] FIG. 7 is a structural diagram 1 of a communication apparatus according to an embodiment of this application;

[00229] FIG. 8 is a flowchart of a measurement reporting method according to an embodiment of this application;

[00230] FIG. 9 is a flowchart of another measurement reporting method according to an embodiment of this application;

[00231] FIG. 10 is a structural diagram 2 of a communication apparatus according to an embodiment of this application;

[00232] FIG. 11 is a structural diagram 3 of a communication apparatus according to an embodiment of this application;

[00233] FIG. 12 is a flowchart of still another measurement reporting method according to an embodiment of this application; and

[00234] FIG. 13 is a flowchart of yet another measurement reporting method according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[00235] For ease of understanding technical solutions in embodiments of this application, the following first briefly describes technologies or terms related to this application.

[00236] 1. SBFD

[00237] Generally, a 5^{th} generation (5^{th} generation, 5G) new radio (new radio, NR) wireless communication system is deployed in medium and high frequency bands, and a high data rate and a low latency are implemented by using a large bandwidth. In a time division duplexing (time division duplexing, TDD) system, as shown in FIG. 1, DL usually occupies a main time resource, which causes coverage imbalance between DL and UL. Compared with a frequency division duplexing (frequency division duplexing, FDD) system, the TDD system has relatively poor uplink coverage, which leads to a relatively high uplink latency.

[00238] To resolve uplink coverage and uplink latency problems in the TDD system, an SBFD solution is proposed in the release (release, R) 18 standard. In the SBFD solution, one carrier may be divided into a plurality of subbands, and transmission directions of different subbands may be different.

[00239] For example, FIG. 2 is a diagram of time-frequency resource allocation in an SBFD solution. On three time units in the middle, one carrier may be divided into three subbands. A middle subband is an uplink subband that can be used for uplink transmission, and is identified by UL in the figure. An upper subband and a lower subband are downlink subbands that can be used for downlink transmission, and are identified by DL in the figure.

[00240] The upper subband refers to a subband with a relatively high frequency, the lower subband refers to a subband with a relatively low frequency, and the middle subband refers to a subband with a frequency between the frequency of the upper subband and the frequency of the lower subband. A 1st or a last time unit may be referred to as a non-SBFD (non-SBFD) time unit, and any time unit in the middle may be referred to as an SBFD time unit. The time unit may be, for example, a slot or a symbol.

[00241] For another example, FIG. 3 is a diagram of time-frequency resource allocation in an SBFD solution. On three time units in the middle, one carrier may be divided into two subbands. An upper subband is a downlink subband that can be used for downlink transmission, and is identified by DL in the figure. A lower subband is an uplink subband that can be used for uplink transmission, and is identified by UL in the figure.

[00242] It may be considered that in the SBFD solution, on the SBFD time unit, a network device may simultaneously send and receive a signal by using different frequency domain resources or subbands. Currently, in the R19 standard, a network device may use a subband fullduplex solution, and a terminal device may use a subband half-duplex solution. That the terminal device uses the subband half-duplex solution means that on an SBFD time unit, the terminal device can only receive or send a signal, but cannot simultaneously receive and send a signal.

[00243] Compared with the TDD system, in the SBFD solution, an uplink transmission resource available to the terminal device increases. Therefore, the SBFD solution can effectively improve uplink coverage and reduce an uplink latency.

[00244] 2. CLI

[00245] In the SBFD solution, leakage of a signal power in a subband to another adjacent subband causes interference between a UL and a DL, that is, CLI. Based on a source of interference, the CLI may be classified into the following two types:

[00246] (1) Type 1: User equipment (user equipment, UE)-to-UE CLI (UE-to-UE CLI).

[00247] UE-to-UE CLI refers to interference caused by an uplink signal sent by one UE in a local cell to a downlink signal received by another UE in the local cell or a neighboring cell. For example, in FIG. 4, interference caused by an uplink signal sent by a UE#1 or a UE#2 to a gNB#1 to a downlink signal received by a UE#0 from a gNB#0 may be referred to as UE-to-UE CLI. In

embodiments of this application, UE-to-UE CLI is mainly measured and reported.

[00248] (2) Type 2: Next generation NodeB (next generation NodeB, gNB)-to-gNB CLI (gNB-to-gNB CLI).

[00249] gNB-to-gNB CLI refers to interference caused by a downlink signal sent by a base station to an uplink signal received by another base station. For example, in FIG. 4, interference caused by a downlink signal sent by the gNB#0 to the UE#0 to an uplink signal received by the gNB#1 from the UE#1 or the UE#2 may be referred to as gNB-to-gNB CLI.

[00250] 3. UE-to-UE CLI measurement and reporting mechanism

[00251] In the UE-to-UE CLI measurement and reporting mechanism, one UE sends a sounding reference signal (sounding reference signal, SRS) to a gNB on which the UE camps, and another UE camping on a local cell or a neighboring cell measures the SRS, and reports a measurement result to a serving cell of the another UE. As shown in FIG. 4, the UE#1 may send an SRS to the gNB#1. The UE#0 may measure the SRS sent by the UE#1, and send a measurement result to the gNB#0; or the UE#2 may measure the SRS sent by the UE#1, and send a measurement result to the gNB#1. Measurement metrics may include an SRS-reference signal received power (reference signal received power, RSRP) and/or a CLI-received signal strength indicator (received signal strength indicator, RSSI).

[00252] For a dynamic TDD system, the R16 standard defines a layer (layer, L) 3 level (level) UE-to-UE CLI (hereinafter referred to as "L3 UE-to-UE CLI" for short) measurement and reporting mechanism. The L3 UE-to-UE CLI measurement and reporting mechanism refers to UE-to-UE CLI measurement and reporting performed at a radio resource control (radio resource control, RRC) protocol layer level. For example, RRC signaling may trigger UE-to-UE CLI measurement, and the RRC signaling may be used for reporting a measurement result.

[00253] For the SBFD solution, the R19 standard introduces an L1 or L2 level UE-to-UE CLI (hereinafter referred to as "L1/L2 UE-to-UE CLI" for short) measurement and reporting mechanism. The measurement and reporting mechanism refers to UE-to-UE CLI measurement and reporting performed at a physical layer or data link layer level. For example, downlink control information (downlink control information, DCI) or a MAC control element (control element, CE) may trigger UE-to-UE CLI measurement and report a measurement result through a physical uplink shared channel (physical uplink shared channel, PUSCH) and/or a physical uplink control channel (physical uplink control channel, PUCCH). Compared with the L3 UE-to-UE CLI measurement and reporting mechanism, the L1/L2 UE-to-UE CLI measurement and reporting mechanism is more flexible, and leads to a shorter measurement and reporting latency, so that a UE-to-UE CLI change can be better tracked, a measurement result is more accurate, and UE-to-UE CLI can be better eliminated.

[00254] Further, the R19 standard further mentions that the L1/L2 UE-to-UE CLI measurement and reporting mechanism is reused with an existing CSI measurement and reporting mechanism. CSI measurement is mainly used for channel measurement and interference measurement between a UE and a gNB.

[00255] 4. Processing capability of a UE defined in the CSI measurement and reporting mechanism

[00256] In general, the processing capability of the UE may refer to a quantity NCPU of simultaneous CSI computations supported by the UE within one component carrier (component carrier, CC) and across all CCs. That the UE supports NCPU simultaneous CSI computations may also be understood as that the UE has NCPU CSI processing units (CSI processing unit, CPU) configured to process CSI reporting. The UE may report the processing capability of the UE to the gNB.

[00257] If a UE has L CPUs, on one OFDM symbol, occupied for CSI reporting processing, the UE has NCPU-L unoccupied CPUs on the OFDM symbol. If N pieces of CSI reporting information (CSI reports) are required to occupy respective CPUs on a same OFDM symbol, and NCPU-L unoccupied CPUs exist on the OFDM symbol, where each piece of CSI reporting information corresponds to $O_{CPU}^{(n)}$ CPUs, and $n = 0, \dots, N-1$, the UE does not need to update N-M pieces of required CSI reporting information with lowest priorities, in other words, the UE only needs to update M pieces of required CSI reporting information with highest priorities, where $0 \leq M \leq N$, and M is a maximum value that meets $\sum_{n=0}^{M-1} O_{CPU}^{(n)} \leq N_{CPU} - L$.

[00258] For a UE, a quantity O_{CPU} of CPUs occupied on some OFDM symbols when the UE processes one piece of CSI reporting information is related to a reporting quantity included in the CSI reporting information, which is specifically classified into the following cases:

[00259] (1) Case 1: $O_{CPU} = 0$.

[00260] A condition for the value is: a reporting quantity included in the CSI reporting information is set to 'none', and a CSI-reference signal (reference signal, RS) resource set associated with the CSI reporting information is configured with tracking reference signal (tracking reference signal, trs)-information (info).

[00261] (2) Case 2: $O_{CPU} = 1$.

[00262] A condition for the value is: a reporting quantity included in the CSI reporting information is set to 'CSI-RS resource indicator (CSI-RS resource indicator, cri)-reference signal received power (reference signal received power, RSRP)', 'synchronization signal and physical broadcast channel block (synchronization signal and physical broadcast channel block, ssb)-index-RSRP', 'cri-signal to interference plus noise ratio (signal to interference plus noise ratio, SINR)', 'ssb-Index-SINR', 'cri-RSRP-Index', 'ssb-Index-RSRP-Index', 'cri-SINR-Index', or 'ssb-Index-

SINR-Index'. Alternatively, a reporting quantity included in the CSI reporting information is set to 'none', and a CSI-RS resource set associated with the CSI reporting information is not configured with trs-info.

[00263] (3) Case 3: $O_{CPU} = N_{CPU}$.

[00264] A condition for the value is: on a premise that a first condition is satisfied, max{μPDCCH, μCSI-RS, μUL}≤3 is met, the CSI reporting message is aperiodically triggered, there is neither transport block (transport block, TB) transmission nor hybrid automatic repeat request (hybrid automatic repeat request, HARQ)-acknowledge (acknowledge, ACK) transmission, L=0 CPU is occupied, the CSI reporting message corresponds to one piece of CSI and the CSI is of a wideband granularity, there are at most four CSI-RS ports in one CSI-RS resource, and a codebook type is set to 'type (type) I-SinglePanel (SinglePanel)' or the reporting quantity is set to 'cri-RI-CQI'.

[00265] μ_{PDCCH} represents a subcarrier spacing (subcarrier spacing, SCS) of a PDCCH, $\mu_{CSI\text{-}RS}$ represents an SCS of a CSI-RS, and μ_{UL} represents a subcarrier spacing of a UL.

[00266] The first condition is: the reporting quantity included in the CSI reporting information is set to 'cri-rank indication (rank indication, RI)-precoding matrix indicator (precoding matrix indicator, PMI)-channel quality indicator (channel quality indicator, CQI)', 'cri-RI-i1 (wideband indicator)', 'cri-RI-i1-CQI', 'cri-RI-CQI', or 'cri-RI-layer indicator (layer indicator, LI)-PMI-CQI'.

[00267] (4) Case 4: $O_{CPU} = X \cdot N + M'$.

[00268] A condition for the value is: on a premise that the foregoing first condition is satisfied, a codebook type is set to 'typeI-SinglePanel', and a corresponding CSI-RS resource set used for channel measurement is configured with two resource groups and N resource pairs. X is a quantity of CPUs occupied by a pair of channel measurement resources (channel measurement resource, CMR), and M' is predefined.

[00269] (5) Case 5: $O_{CPU} = K_s$, where K_s is a quantity of CSI-RS resources in a CSI-RS resource set used for channel measurement.

[00270] A condition for the value is: on a premise that the foregoing first condition is satisfied, another condition different from the conditions in Case 3 and Case 4 is satisfied.

[00271] As described above, a CSI reporting message whose reporting quantity is not set to 'none' occupies a CPU on some OFDM symbols. The following describes meanings of "some OFDM symbols" in different cases.

[00272] A periodic or semi-persistent CSI reporting message occupies a CPU from a 1st symbol of an earliest CSI-RS/earliest CSI-interference measurement (interference measurement, IM)/an earliest SSB in all CSI-RSs/CSI-IM/SSBs used for channel or interference measurement to a last symbol of a PUSCH/PUCCH that carries the periodic or semi-persistent CSI reporting message.

The semi-persistent CSI reporting message does not include an initial semi-persistent CSI reporting message that is carried on a PUSCH and that is after a PDCCH triggering measurement reporting.

[00273] One piece of aperiodic CSI (aperiodic CSI, A-CSI) reporting information occupies a CPU from a 1st symbol after a PDCCH triggering the aperiodic CSI reporting message to a last symbol of a scheduled PUSCH that carries the aperiodic CSI reporting message.

[00274] The initial semi-persistent CSI reporting message that is carried on the PUSCH and that is after the PDCCH triggering measurement reporting occupies a CPU from a 1st symbol after the PDCCH to a last symbol of the scheduled PUSCH that carries the initial semi-persistent CSI reporting message.

[00275] 5. Minimum processing latency of a UE defined in a CSI measurement and reporting mechanism

[00276] Currently, a minimum processing latency (Z, Z') is defined for an aperiodic CSI reporting message or a semi-persistent CSI reporting message that is triggered by a PDCCH and carried on a PUSCH. As shown in FIG. 5, a PDCCH may trigger A-CSI measurement reporting, and a UE may measure CSI on a CSI measurement resource. Subsequently, an A-CSI reporting message may be carried on an uplink channel, for example, a PUSCH. The PDCCH and CSI measurement resources may occupy DL resources, and an uplink channel may occupy a UL resource.

[00277] In FIG. 5, Z is a minimum time interval between an end of a last symbol of the PDCCH and a start of a 1st symbol of the PUSCH. Z' is a minimum time interval between an end of a last symbol of a latest resource in a CSI-RS resource used for channel measurement, CSI-IM used for interference measurement, and a (none zero power, NZP) CSI-RS used for interference measurement and the start of the 1st symbol of the PUSCH.

[00278] In addition, $Z = \max_{m=0,\dots,M-1}(Z(m))$ and $Z' = \max_{m=0,\dots,M-1}(Z'(m))$, where M is a determined quantity of to-be-updated CSI reporting messages. Candidate values of Z and Z' may be shown in Table 1 and Table 2. Subscripts 1, 2, or 3 of Z and Z' respectively represent a first-type candidate value, a second-type candidate value, or a third-type candidate value. μ represents an SCS.

Table 1

μ	Z_1 (symbol)	
	Z_1	Z_1'
0	10	8
1	13	11

μ	Z_1 (symbol)	
	Z_1	Z_1'
2	25	21
3	43	36

Table 2

μ	Z_1 (symbol)		Z_2 (symbol)		Z_3 (symbol)	
	Z_1	Z_1'	Z_2	Z_2'	Z_3	Z_3'
0	22	16	40	37	22	X_0
1	33	30	72	69	33	X_1
2	44	42	141	140	min(44, X_2+KB_1)	X_2
3	97	85	152	140	min(97, X_3+KB_2)	X_3
5	388	340	608	560	min(388, X_5+KB_3)	X_5
6	776	680	1216	1120	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the UE, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the UE. The UE may report the beam reporting timing capability and the beam switching timing capability of the UE to the gNB.

[00279] For a problem that there is no CLI measurement reporting method currently, embodiments of this application provide different CLI measurement reporting methods, and corresponding CPU occupancy and minimum processing latencies.

[00280] The following describes technical solutions in the embodiments of this application with reference to accompanying drawings in the embodiments of this application. In descriptions of this application, unless otherwise specified, "/" represents an "or" relationship between associated objects. For example, A/B may represent A or B. In this application, "and/or" describes only an association relationship for describing associated objects and represents that three relationships may exist. For example, A and/or B may represent the following three cases: only A exists, both A and B exist, and only B exists, where A or B may be singular or plural. In addition, in the descriptions of this application, "a plurality of" means two or more than two unless otherwise specified. "At least one item (piece) of the following" or a similar expression thereof means any combination of these items, including a singular item (piece) or any combination of plural items (pieces). For example, at least one item (piece) of a, b, or c may indicate: a, b, c, a-b, a-c, b-c, or a-b-c, where a, b, and c may be singular or plural. In addition, for ease of clearly describing technical solutions in the embodiments of this application,

before describing the solutions of this application, the following several points are

described.

[00281] (1) In this application, an "indication" may include a direct indication, an indirect indication, an explicit indication, or an implicit indication. When a piece of indication information is described as indicating A, it may be understood that the indication information carries A, directly indicates A, or indirectly indicates A.

[00282] In this application, information indicated by the indication information is referred to as to-be-indicated information. In one specific implementation process, there are many manners of indicating the to-be-indicated information. For example, the manners include but are not limited to a manner in which the to-be-indicated information, for example, the to-be-indicated information or an index of the to-be-indicated information, may be directly indicated. Alternatively, the to-be-indicated information may be indirectly indicated by indicating other information, and there is an association relationship between the other information and the to-be-indicated information. Alternatively, only a part of the to-be-indicated information may be indicated, and the other part of the to-be-indicated information is known or pre-agreed on. For example, specific information may also be indicated by using an arrangement sequence of a plurality of pieces of information that is pre-agreed on (for example, stipulated in a protocol), to reduce indication overheads to some extent. In addition, the to-be-indicated information may be sent as a whole, or may be divided into a plurality of pieces of sub-information for separate sending. In addition, sending periodicities and/or sending occasions of the sub-information may be the same or may be different.

[00283] (2) In this application, "sending" and "receiving" represent signal transfer directions. For example, "sending information to XX" may be understood as that a destination end of the information is XX, and may include direct sending through an air interface, or may include indirect sending through an air interface by another unit or module. "Receiving information from YY" may be understood as that a source end of the information is YY, and may include direct receiving from YY through an air interface, or may include indirect receiving from YY via another unit or module through an air interface. "Sending" may also be understood as "outputting" of a chip interface, and "receiving" may also be understood as "inputting" of the chip interface. In other words, sending and receiving may be performed between devices, for example, between a network device and a terminal device, or may be performed inside a device, for example, sending or receiving between components, modules, chips, software modules, or hardware modules inside the device through a bus, a cable, or an interface. In addition, unless otherwise specified, "transmission" includes receiving and/or sending. For example, transmission of a signal may include receiving a signal and/or sending a signal.

[00284] (3) In this application, that information C is used to determine information D not only includes that the information D is determined based only on the information C, but also includes

that the information D is determined based on the information C and other information. In addition, that the information C is used to determine the information D may further include an indirect determining case, for example, a case in which the information D is determined based on information E, and the information E is determined based on the information C.

[00285] (4) Terms "include", "have", and any other variant thereof are intended to cover a non-exclusive inclusion. For example, a process, method, system, product, or device that includes a list of steps or units is not necessarily limited to those steps or units that are expressly listed, but may include other steps or units that are not expressly listed or are inherent to the process, method, system, product, or device.

[00286] (5) In embodiments of this application, unless otherwise stated or logically contradictory, terms and/or descriptions between different embodiments are consistent and may be mutually referenced, and technical features in different embodiments may be combined into a new embodiment based on an internal logical relationship thereof.

[00287] (6) In this application, "first" and "second" are merely for ease of description, and are used to distinguish objects, but are not intended to limit the scope of embodiments of this application, and are not intended to describe an order or a sequence of features. It is to be understood that objects described in such a way are interchangeable in an appropriate circumstance, so that a solution other than embodiments of this application can be described.

[00288] (7) In this application, a carrier range may include at least a downlink subband and an uplink subband. Whether a guard band (guard band) exists between the downlink subband and the uplink subband and whether transmission can be performed on the guard band if the guard band exists are not limited in this embodiment of this application. In addition, whether the downlink subband and the uplink subband can overlap is not limited in this embodiment of this application.

[00289] For the time domain configuration of the SBFD, there are two possible configuration manners based on whether one slot includes both an SBFD symbol and a non-SBFD symbol. In a possible configuration manner, time domain configuration of SBFD is slot-level, that is, symbols included in one slot are either all configured as SBFD symbols, or all configured as non-SBFD symbols. In another possible configuration manner, the time domain configuration of the SBFD is symbol-level, that is, some symbols included in one slot may be configured as SBFD symbols, and the other symbols may be configured as non-SBFD symbols. A time domain configuration manner of the SBFD is not limited in this embodiment of this application. The SBFD symbol may be a symbol configured with an SBFD operation (operation), and the non-SBFD symbol may be a symbol not configured with an SBFD operation. For uplink transmission, the non-SBFD symbol may be an uplink symbol or a flexible symbol. For downlink transmission, the non-SBFD symbol may be a downlink symbol or a flexible symbol.

[00290] An architecture diagram of a mobile communication system in FIG. 6 is an architecture diagram of a communication system 1000 to which an embodiment of this application is applied. As shown in FIG. 6, the communication system includes a radio access network 100 and a core network 200. Optionally, the communication system 1000 may further include Internet 300. The radio access network 100 may include at least one radio access network device (for example, 110a and 110b in FIG. 6), and may further include at least one terminal device (for example, 120a to 120j in FIG. 6). The terminal device is wiredly connected to the radio access network device. For example, the terminal device may be connected to the radio access network device by using an air interface. The radio access network device is wiredly or wirelessly connected to the core network. The core network device and the radio access network device may be different independent physical devices, or functions of the core network device and logical functions of the radio access network device may be integrated into a same physical device, or some of functions of the core network device and some of functions of the radio access network device may be integrated into one physical device. Terminal devices may be wiredly or wirelessly connected to each other, and radio access network devices may be wiredly or wirelessly connected to each other. FIG. 6 is only a diagram. The communication system may further include other network devices, for example, may further include a wireless relay device and a wireless backhaul device, which are not shown in FIG. 6.

[00291] The radio access network device is an access device through which the terminal device accesses the communication system wirelessly. The radio access network device may be a base station (base station), an evolved NodeB (evolved NodeB, eNodeB), a transmission reception point (transmission reception point, TRP), a gNB in a 5G mobile communication system, a next generation base station in a 6G mobile communication system, a base station in a future mobile communication system, an access node in a Wi-Fi system, or the like. In another possible scenario, a plurality of radio access network (radio access network, RAN) nodes cooperate to assist a terminal in implementing radio access, and different RAN nodes separately implement some functions of the base station. For example, the RAN node may be a central unit (central unit, CU), a distributed unit (distributed unit, DU), a CU-control plane (control plane, CP), a CU-user plane (user plane, UP), a radio unit (radio unit, RU), or the like. The CU and the DU may be separately arranged, or may be included in the same network element, for example, a baseband unit (baseband unit, BBU). The RU may be included in a radio frequency device or a radio frequency unit, for example, included in a remote radio unit (remote radio unit, RRU), an active antenna unit (active antenna unit, AAU), or a remote radio head (remote radio head, RRH).

[00292] In different systems, the CU (or the CU-CP and the CU-UP), the DU, or the RU may alternatively have different names, but a person skilled in the art may understand meanings thereof.

For example, in an open RAN (open RAN, ORAN) system, the CU may also be referred to as an O-CU (open CU), the DU may also be referred to as an O-DU, the CU-CP may also be referred to as an O-CU-CP, the CU-UP may also be referred to as an O-CU-UP, and the RU may also be referred to as an O-RU. For ease of description, the CU, the CU-CP, the CU-UP, the DU, and the RU are used as examples for description in this application. Any one of the CU (or the CU-CP or the CU-UP), the DU, and the RU in this application may be implemented by using a software module, a hardware module, or a combination of a software module and a hardware module. Embodiments of this application may be implemented by the DU or the RU.

[00293] The radio access network device may be a macro base station (for example, 110a in FIG. 6), may be a micro base station or an indoor base station (for example, 110b in FIG. 6), or may be a relay node or a donor node. A specific technology and a specific device form used by the radio access network device are not limited in embodiments of this application. For ease of description, the following provides descriptions by using an example in which the radio access network device is a base station.

[00294] The terminal device further has a wireless transceiver function, and may send a signal to a base station, or receive a signal from a base station. The terminal device may also be referred to as a terminal, user equipment (user equipment, UE), a mobile station, a mobile terminal device, or the like. The terminal device may be widely used in various scenarios, for example, ambient IOT, device-to-device (device-to-device, D2D), vehicle to everything (vehicle to everything, V2X) communication, machine-type communication (machine-type communication, MTC), virtual reality, augmented reality, industrial control, autonomous driving, telemedicine, smart grid, smart furniture, smart office, smart wearable, smart transportation, and smart city. The terminal device may be a mobile phone, a tablet computer, a computer having a wireless transceiver function, a wearable device, a vehicle, an unmanned aerial vehicle, a helicopter, an airplane, a ship, a robot, a robotic arm, a smart home device, or the like. A specific technology and a specific device form used by the terminal device are not limited in embodiments of this application.

[00295] The base station and the terminal device may be fixed or movable. The base station and the terminal device may be deployed on land, including an indoor or outdoor scenario and a handheld or vehicle-mounted scenario, or may be deployed on water, or may be deployed on an airplane, a balloon, and an artificial satellite. Application scenarios of the base station and the terminal device are not limited in embodiments of this application.

[00296] Roles of the base station and the terminal device may be relative. For example, a helicopter or an unmanned aerial vehicle 120i in FIG. 6 may be configured as a mobile base station, and for those terminal devices 120j that access a radio access network 100 by 120i, the terminal device 120i is a base station. However, for the base station 110a, 120i is a terminal device. That is,

communication between 110a and 120i is performed based on a radio air interface protocol. Certainly, communication between 110a and 120i may also be performed based on an interface protocol between base stations. In this case, for 110a, 120i is also a base station. Therefore, the base station and the terminal device may be collectively referred to as a communication apparatus, 110a and 110b in FIG. 6 each may be referred to as a communication apparatus having a function of a base station, and 120a to 120j in FIG. 6 each may be referred to as a communication apparatus having a function of a terminal device.

[00297] Communication between a base station and a terminal device, between base stations, or between terminal devices may be performed by using a licensed spectrum, or may be performed by using an unlicensed spectrum, or may be performed by using both a licensed spectrum and an unlicensed spectrum. Communication may be performed by using a spectrum below 6 gigahertz (gigahertz, GHz), or may be performed by using a spectrum above 6 GHz, or may be performed by using both a spectrum below 6 GHz and a spectrum above 6 GHz. A spectrum resource used for wireless communication is not limited in embodiments of this application.

[00298] In embodiments of this application, a function of the base station may be performed by a module (for example, a chip) in the base station, or may be performed by a control subsystem including the function of the base station. The control subsystem including the function of the base station herein may be a control center in the foregoing application scenarios, such as the smart grid, the industrial control, the smart transportation, and the smart city. A function of the terminal device may also be performed by a module (for example, a chip or a modem) in the terminal device, or may be performed by an apparatus including the function of the terminal device.

[00299] For example, the network device provided in this embodiment of this application may be 110a or 110b in FIG. 6, and the terminal device provided in this embodiment of this application may be any one of 120a to 120j in FIG. 6.

[00300] A related function of the network device or the terminal device involved in this application may be implemented by one device, may be jointly implemented by a plurality of devices, may be implemented by one or more functional modules in one device, may be implemented by one or more chips, or may be implemented by a system on chip (system on chip, SoC) or a system on a chip. The system on a chip may include a chip, or may include a chip and another discrete device. This is not specifically limited in embodiments of this application.

[00301] It may be understood that the foregoing function may be a network element in a hardware device, may be a software function running on dedicated hardware, a combination of hardware and software, or a virtualization function instantiated on a platform (for example, a cloud platform).

[00302] For example, the related functions of the network device or the terminal device in

embodiments of this application may be implemented by a communication apparatus 110 in FIG. 7.

[00303] FIG. 7 is a structural diagram of a possible communication apparatus 110. It may be understood that the communication apparatus 110 includes a means in a necessary form, such as a module, a unit, an element, a circuit, or an interface, which are appropriately configured together to implement the solution. The communication apparatus 110 may be a network device or a terminal device, or may be a component (for example, a chip) in these devices, to implement a method described in the following method embodiments. The communication apparatus 110 includes one or more processors 111. The processor 111 may be a general-purpose processor, a dedicated processor, or the like. For example, the processor may be a baseband processor or a central processing unit. The baseband processor may be configured to process a communication protocol and communication data. The central processing unit may be configured to control the communication apparatus (for example, a terminal device, a network device, or a chip), to execute a software program and process data of the software program.

[00304] Optionally, in a design, the processor 111 may include a program 113 (which may also be referred to as code or instructions sometimes). The program 113 may be executed on the processor 111, to enable the communication apparatus 110 to perform the methods described in the following embodiments. In another possible design, the communication apparatus 110 includes a circuit (not shown in FIG. 7).

[00305] Optionally, the communication apparatus 110 may include one or more memories 112, having a program 114 (which may also be referred to as code or instructions sometimes) stored therein. The program 114 may be executed on the processor 111, to enable the communication apparatus 110 to perform the methods described in the foregoing method embodiments.

[00306] Optionally, the processor 111 and/or the memory 112 may include AI modules 117 and 118. The AI module is configured to implement an AI-related function. The AI module may be implemented by software, hardware, or a combination of the software and the hardware. For example, the AI module may include a RAN intelligent controller (RAN intelligent controller, RIC) module. For example, the AI module may be a near-real-time RIC or a non-real-time RIC.

[00307] Optionally, the processor 111 and/or the memory 112 may further store data. The processor and the memory may be separately disposed, or may be integrated together.

[00308] Optionally, the communication apparatus 110 may further include a transceiver 115 and/or an antenna 116. The processor 111 may also be sometimes referred to as a processing unit, controlling a communication apparatus (for example, a network device or a terminal device). The transceiver 115 may also be sometimes referred to as a transceiver unit, a transceiver machine, a transceiver circuit, a transceiver, or the like, and is configured to implement a transceiver function

of the communication apparatus by using the antenna 116.

[00309] In addition, the composition structure shown in FIG. 7 does not constitute a limitation on the communication apparatus. In addition to the components shown in FIG. 7, the communication apparatus may include more or fewer components than those shown in the figure, a combination of some components, or different component arrangements.

[00310] The following describes in detail the measurement reporting method according to the embodiments of this application with reference to FIG. 1 to FIG. 7.

[00311] FIG. 8 is a flowchart of a measurement reporting method according to an embodiment of this application. The method includes the following steps.

[00312] Step S801: A network device sends first configuration information to a terminal device, and correspondingly, the terminal device receives the first configuration information from the network device.

[00313] The first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to CSI measurement reports.

[00314] In this embodiment of this application, a CSI measurement report (a CSI report) is a measurement report corresponding to a "CSI report configuration CSI-ReportConfig" field configured by a higher layer. The CSI measurement report is related to a process of a CSI measurement reporting process. The CSI measurement report may correspond to one or more CSI measurement reports, or the CSI measurement report may include measurement results associated with one or more CSI measurement reports. In other words, the first configuration information may be used to configure a CSI measurement report, and the CSI measurement report includes one or more CSI measurement reports.

[00315] "CLI between terminal devices" in this embodiment of this application may be the foregoing "UE-to-UE CLI".

[00316] For example, the measurement reporting method provided in this embodiment of this application may be applied to an L1/L2 UE-to-UE CLI measurement and reporting mechanism.

[00317] Step S802: The terminal device sends at least one of the one or more first-type measurement reports to the network device based on the first configuration information, and correspondingly, the network device receives the at least one of the one or more first-type measurement reports from the terminal device.

[00318] In the measurement reporting method provided in this embodiment of this application, a CLI measurement reporting method between the terminal devices is specified, thereby providing a basis for specific implementation on a network device side and a terminal device side. The

measurement reporting method may be reused with an existing CSI measurement reporting method, so that an implementation process of CLI measurement reporting can be simplified.

[00319] In this embodiment of this application, a first terminal device may measure an SRS from a second terminal device, and send a measurement result to a serving cell of the first terminal device. The first terminal device may be the terminal device in the embodiment shown in FIG. 8. Alternatively, the terminal device may perform CLI measurement between terminal devices on an SBFD time unit, and send a measurement result to the network device.

[00320] In this embodiment of this application, one first-type measurement report includes CLI measurement information between the terminal devices. The CLI measurement information includes at least one of the following: an SRS-RSRP, a CLI-RSSI, an SRS-SINR, an SRS resource indicator (resource indicator), and a CLI-RSSI resource indicator. The SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indication is a resource indicator used for CLI-RSSI measurement.

[00321] In the embodiment shown in FIG. 8, the CLI measurement information is different from CSI measurement information. In other words, a measurement parameter of CLI is different from a measurement parameter of CSI, or a reporting parameter of CLI is different from a reporting parameter of CSI. The CSI measurement information includes at least one of the following: an L1-RSRP, an L1-SINR, a CQI, an RI, a PMI, an LI CRI, an SSB resource indicator (SSB resource indicator, SSBRI), or a time domain channel property (time domain channel property, TDCP). In the embodiment shown in FIG. 8, a manner in which the terminal device sends the first-type measurement report to the network device may also be referred to as explicit reporting.

[00322] The following describes two possible implementations depending on whether one first-type measurement report includes CSI measurement information.

[00323] In one possible implementation, one first-type measurement report includes only the CLI measurement information between the terminal devices.

[00324] In this implementation, a quantity of CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

[00325] In this embodiment of this application, if the quantity of CPUs corresponding to one first-type measurement report is set to an excessively large value, some CPUs are not actually occupied, reducing CPU utilization and causing a waste of processing resources. On the contrary, if the quantity of CPUs corresponding to one first-type measurement report is set to an excessively small value, the first-type measurement reporting cannot be normally performed. Therefore, an expected quantity of CPUs corresponding to one first-type measurement report is close to a quantity of CPUs actually occupied by one first-type measurement report.

[00326] For example, the quantity of CPUs corresponding to one first-type measurement report may be 1.

[00327] For example, when the CLI measurement information includes only the CLI-RSSI, the quantity of CPUs corresponding to one first-type measurement report may be greater than 0 and less than 1. Because CLI-RSSI measurement is relatively easy, when the CLI measurement information includes only the CLI-RSSI, a quantity of CPUs corresponding to one first-type measurement report may be set to a relatively small value.

[00328] In another possible implementation, one first-type measurement report includes both the CSI measurement information and the CLI measurement information that is between the terminal devices. For example, one first-type measurement report includes at least one of the CQI and the L1-SINR, and at least one of the SRS-RSRP, the CLI-RSSI, and the SRS-SINR.

[00329] In this implementation, the quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that includes only the CSI measurement information. The first value may be O_{CPU} defined in the foregoing CSI measurement and reporting mechanism. In this solution, one first-type measurement report not only involves computation or processing of the CSI measurement information, but also involves computation or processing of the CLI measurement information. Therefore, one first-type measurement report occupies more CPUs.

[00330] Optionally, the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00331] For example, the second value may be 0.5 or 1.

[00332] Optionally, the quantity of CPUs corresponding to one first-type measurement report may be a sum of a quantity of CPUs occupied for computing or processing CSI measurement information and a quantity of CPUs occupied for computing or processing CLI measurement information.

[00333] Optionally, duration of CPU occupation by one first-type measurement report is as follows:

[00334] If the first-type measurement report is a periodic or semi-persistent CSI report (excluding a 1st semi-persistent CSI report performed on a PUSCH after a PDCCH triggering the first-type measurement report), a CPU is occupied from a 1st symbol of an earliest measurement resource in all measurement resources such as CSI-RS/CSI-IM/SSB/SRS/CLI-RSSI used for channel or interference measurement to a last symbol of a PUSCH/PUCCH carrying the first-type measurement report.

[00335] If the first-type measurement report is an aperiodic CSI report, a CPU is occupied from

a 1st symbol after the first-type measurement report is triggered to a last symbol of a scheduled PUSCH carrying the first-type measurement report.

[00336] If the first-type measurement report is the 1st semi-persistent CSI report performed on the PUSCH after the first-type measurement report is triggered, a CPU is occupied from a 1st symbol after the PDCCH to the last symbol of the scheduled PUSCH carrying the first-type measurement report.

[00337] For the foregoing two possible implementations, the measurement reporting method provided in this embodiment of this application further includes: The terminal device sends first indication information to the network device, and correspondingly, the network device receives the first indication information from the terminal device. The first indication information indicates a quantity of CPUs corresponding to one first-type measurement report.

[00338] Optionally, the measurement reporting method provided in this embodiment of this application further includes: The terminal device sends second indication information or third indication information to the network device, and correspondingly, the network device receives the second indication information or the third indication information from the terminal device. The second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices. In this solution, the terminal device may report capability information of the terminal device to the network device.

[00339] That the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement may be expressed as that the second indication information indicates a quantity of CPUs that can be used for computations of CLI measurement information and CSI measurement information. Similarly, that the third indication information indicates a quantity of supported simultaneous computations for CLI measurements between the terminal devices may be expressed as that the third indication information indicates a quantity of CPUs that can be used for computation of CLI measurement information.

[00340] In a case that the terminal device sends the second indication information to the network device, the foregoing N_{CPU} CPUs or computations may be shared by CLI measurement and CSI measurement in this embodiment of this application, thereby saving processing resources.

[00341] In a case that the terminal device sends the third indication information to the network device, the foregoing N_{CPU} CPUs or computations are still dedicated to CSI measurement in this embodiment of this application, and N'_{CPU} CPUs or computations may be dedicated to CLI measurement. Therefore, sufficient processing resources dedicated to CLI measurement can be ensured, which is beneficial to ensuring normal CLI measurement reporting. In addition, it can be

ensured that CLI measurement does not occupy a CPU resource for CSI measurement, thereby reducing an impact on CSI measurement. It should be noted that one CPU of the N_{CPU} CPUs may be the same as or different from one CPU of the N'_{CPU} CPUs. This is not limited in the present invention. Extendedly, in a case that the terminal device sends the third indication information to the network device, when the terminal device determines M CSI reporting messages that are updated or processed on a current symbol and have high priorities, a total quantity of CPUs occupied by P CSI reporting messages related to CSI does not exceed a quantity of CPUs currently available for the CSI, and a total quantity of CPUs occupied by Q CSI reporting messages related to CLI does not exceed a quantity of CPUs currently available for the CLI, where P+Q=M.

[00342] Optionally, the measurement reporting method provided in this embodiment of this application further includes: The network device sends a first message to the terminal device, and correspondingly, the terminal device receives the first message from the network device. The first message is used to trigger at least one first-type measurement report. A time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to the start of the 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on an SCS.

[00343] In one possible implementation, the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet a relationship shown in Table 3.

Table 3

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

where X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device. In this solution, the CLI measurement between the terminal devices is beam-based measurement. For example, a measurement resource used for the CLI measurement is configured by using an SRS resource set as a granularity. The SRS

resource set includes a plurality of SRS resources. Alternatively, for example, only one SRS resource is configured, and the SRS resource is associated with a plurality of Type D QCL relationships. In this case, a value of the first latency may reuse a value of Z_3 from Table 2 in the CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_3' from Table 2 in the CSI measurement and reporting mechanism.

[00344] In another possible implementation, the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet a relationship shown in Table 4.

Table 4

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00345] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet a relationship shown in Table 5.

Table 5

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00346] In this solution, the CLI measurement between the terminal devices is not beam-based measurement. For example, only one SRS resource is configured, and the SRS resource is associated with one Type D QCL relationship. In this case, a value of the first latency may reuse a value of Z_1 from Table 1 or Table 2 in the CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_1' from Table 1 or Table 2 in the CSI measurement and reporting mechanism.

[00347] FIG. 9 is a flowchart of another measurement reporting method according to an embodiment of this application. The method includes the following steps.

[00348] Step S901: A terminal device performs CSI measurement on an SBFD time unit to obtain a measurement result, where the measurement result is obtained based on CLI measurement

information between terminal devices.

[00349] CLI measurement and reporting between the terminal devices in this embodiment of this application may be the foregoing UE-to-UE CLI.

[00350] For example, the measurement reporting method provided in this embodiment of this application may be applied to an L1/L2 UE-to-UE CLI measurement and reporting mechanism.

[00351] Step S902: The terminal device sends a CSI reporting message to a network device, and correspondingly, the network device receives the CSI reporting message from the terminal device, where the CSI reporting message includes the measurement result.

[00352] In the measurement reporting method provided in this embodiment of this application, the terminal device performs CSI measurement on the SBFD time unit, and the CLI measurement information between the terminal devices is considered in the obtained measurement result, so that the CLI measurement information can be implicitly reported to the network device. The network device may obtain the CLI measurement information based on a CSI reporting message including the CLI measurement information and a CSI reporting message including only the CSI measurement information.

[00353] In this embodiment of this application, the CSI reporting message includes an SINR and/or a CQI. In this solution, a measurement quantity of CLI is the same as a measurement quantity of CSI, or a reporting quantity of CLI is the same as a reporting quantity of CSI. In the embodiment shown in FIG. 9, a manner in which the terminal device sends the CSI reporting message to the network device may also be referred to as implicit reporting.

[00354] Optionally, the measurement reporting method provided in this embodiment of this application further includes: performing CSI measurement on a first measurement resource, where the first measurement resource includes an SBDF time unit in time domain. In this solution, the first measurement resource may be a CSI measurement resource.

[00355] The following describes two possible implementations based on a purpose of the first measurement resource.

[00356] In one possible implementation, the first measurement resource is a time-frequency resource used for channel measurement or interference measurement. In this solution, the first measurement resource may be, for example, at least one of a CSI-RS resource currently used for channel measurement, CSI-IM used for interference measurement, or an NZP CSI-RS used for interference measurement.

[00357] In this implementation, because the measurement quantity of CLI is the same as the measurement quantity of CSI, and the measurement resource does not change, a quantity of CPUs corresponding to the CSI reporting message is the same as a first value, and the first value is a quantity of CPUs corresponding to the CSI reporting message including only the CSI measurement

result. The first value may be O_{CPU} defined in the foregoing CSI measurement and reporting mechanism.

[00358] In one possible implementation, the first measurement resource is a time-frequency resource dedicated to the CLI measurement information between the terminal devices. In this solution, the first measurement resource may be, for example, a CLI-RSSI measurement resource dedicated to CLI-RSSI measurement, or an SRS resource dedicated to SRS-RSRP measurement.

[00359] In this implementation, a quantity of CPUs corresponding to the CSI reporting message is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI reporting message including only the CSI measurement result. The first value may be O_{CPU} defined in the foregoing CSI measurement and reporting mechanism. In this solution, in a process of generating the CSI reporting message, the terminal device not only needs to measure CSI on the time-frequency resource currently used for channel measurement or interference measurement, but also needs to measure CLI on the first measurement resource. Therefore, complexity of generating the CSI reporting message by the UE increases, that is, the quantity of CPUs corresponding to the CSI reporting message increases.

[00360] In this embodiment of this application, if the quantity of CPUs corresponding to the CSI reporting message is set to an excessively large value, some CPUs are not actually occupied, reducing CPU utilization and causing a waste of processing resources. On the contrary, if the quantity of CPUs corresponding to the CSI reporting message is set to an excessively small value, CLI measurement reporting cannot be normally performed. Therefore, an expected quantity of CPUs corresponding to the CSI reporting message is close to a quantity of CPUs actually occupied by the CSI reporting message.

[00361] Optionally, the quantity of CPUs corresponding to the CSI reporting message meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

[00362] For example, the second value may be 0.5 or 1.

[00363] For the foregoing two possible implementations, the measurement reporting method provided in this embodiment of this application further includes: The terminal device sends first indication information to the network device, and correspondingly, the network device receives the first indication information from the terminal device. The first indication information indicates the quantity of CPUs corresponding to the CSI reporting message.

[00364] Optionally, before the terminal device performs CSI measurement on the SBFD time unit, the measurement reporting method provided in this embodiment of this application further includes: The network device sends a first message to the terminal device, and correspondingly, the terminal device receives the first message from the network device. The first message is used

to trigger the terminal device to perform CSI measurement on the SBFD time unit. A time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the measurement result is a first latency, a time interval from an end of a last symbol in the first measurement resource to the start of the 1st symbol occupied by the channel carrying the measurement result is a second latency, and the first latency and the second latency are determined based on an SCS.

[00365] Optionally, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet a relationship shown in Table 6.

Table 6

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

[00366] Alternatively, the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet a relationship shown in Table 7.

Table 7

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

[00367] In this solution, a value of the first latency may reuse a value of Z_1 from Table 1 or Table 2 in the CSI measurement and reporting mechanism; and a value of the second latency may reuse a value of Z_1' from Table 1 or Table 2 in the CSI measurement and reporting mechanism.

[00368] The network device sends configuration information to the terminal device, and correspondingly, the terminal device receives the configuration information from the network device. The configuration information is used to configure a first time-frequency resource, the first time-frequency resource is not used for uplink channel/signal transmission, and the uplink transmission may be performed through a PUSCH or PUCCH. In one specific implementation, when the first time-frequency resource overlaps a time-frequency resource of one PUSCH, rate matching is performed on the PUSCH on a time-frequency resource that is in the first time-

frequency resource and overlaps the time-frequency resource of the PUSCH. The rate matching is a process of selecting, based on the time-frequency resource available for the PUSCH, a coded bit from coded bits obtained by performing channel coding on data carried on the PUSCH. An advantage of the solution of the present disclosure is that because the terminal device does not send a PUSCH on the first time-frequency resource, the network device may perform channel or interference measurement on such time-frequency resource, which is beneficial for the network device to accurately measure a channel or interference. For example, the network device may measure gNB-to-gNB CLI, to perform interference processing such as interference avoidance or suppression, so as to improve network performance.

[00369] In one specific implementation, the first time-frequency resource includes one or more symbols in time domain, and includes one or more subcarriers in frequency domain. In one possible implementation, the first time-frequency resource employs comb mapping in frequency domain, and the comb mapping is to perform mapping at an interval of one or more subcarriers. In this way, a peak to average power ratio (peak to average power ratio, PAPR) of the terminal device can be reduced.

[00370] In one specific implementation, when the PUSCH carries uplink control information (uplink control information, UCI), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and carries the UCI information, or the first time-frequency resource does not include the symbol that is in the PUSCH and carries the UCI. In another possible implementation, when the first time-frequency resource overlaps a symbol that is in the PUSCH and carries the UCI, or when the first time-frequency resource includes the symbol that is in the PUSCH and carries the UCI, the first time-frequency resource is not used for UCI transmission. For example, a modulation symbol that carries the UCI is not mapped to the first time-frequency resource, or when determining an available resource element (resource element, RE) for UCI transmission, the first time-frequency resource is excluded, or the first time-frequency resource is not an available RE for the UCI information. An advantage of the method is that an impact of the first time-frequency resource on UCI transmission can be reduced, and UCI transmission performance can be ensured.

[00371] In one specific implementation, when the PUSCH is configured with a phase tracking reference signal (PT-RS), in one possible implementation, the first time-frequency resource does not overlap a symbol that is in the PUSCH and carries the PT-RS, or the first time-frequency resource does not include the symbol that is in the PUSCH and carries the PT-RS. In another possible implementation, the first time-frequency resource overlaps a symbol that is in the PUSCH and carries the PT-RS, or the first time-frequency resource includes the symbol that is in the PUSCH and carries the PT-RS. When the first time-frequency resource overlaps an RE occupied

by the PT-RS, an RE that is in the first time-frequency resource and overlaps the RE occupied by the PT-RS does not take effect, or the first time-frequency resource does not take effect for the PT-RS, and transmission of the PT-RS may be performed on the first time-frequency resource. An advantage of the method is that an impact of the first time-frequency resource on PT-RS transmission can be reduced, and PT-RS transmission performance can be ensured.

[00372] In FIG. 2, there are two downlink subbands that are non-contiguous in frequency domain in an SBFD slot. An embodiment shown in FIG. 12 shows a manner of configuring a CSI-RS resource and performing measurement reporting on the two downlink subbands that are non-contiguous in frequency domain, and CPU occupation corresponding to different measurement reporting manners. For example, FIG. 12 is a flowchart of still another measurement reporting method according to an embodiment of this application. The method includes the following steps.

[00373] Step S1201: A network device sends first configuration information to a terminal device, and correspondingly, the terminal device receives the first configuration information from the network device.

[00374] The first configuration information is used by the terminal device to obtain a first CSI-RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on an SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain.

[00375] Optionally, the network device configures the first CSI-RS resource and the second CSI-RS resource in the following three manners.

[00376] (1) Manner 1: The first configuration information is used to configure two associated CSI-RS resources, one CSI-RS resource of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

[00377] In other words, the network device may configure one CSI-RS resource in each of two downlink subbands that are non-contiguous in frequency domain, that is, the network device may configure the first CSI-RS resource in the first downlink subband, and configure the second CSI-RS resource in the second downlink subband. The two CSI-RS resources are associated.

[00378] In Manner 1, for a manner of configuring the first CSI-RS resource or the second CSI-RS resource, refer to an existing CSI-RS resource configuration manner. For example, the network device configures two CSI-RS resources, each CSI-RS resource is independently configured with a frequency start position and a bandwidth, and the two CSI-RS resources are the first CSI-RS resource and the second CSI-RS resource.

[00379] (2) Manner 2: The first configuration information is used to configure a CSI-RS resource, where the CSI-RS resource includes a first CSI-RS resource and a second CSI-RS

resource.

[00380] For example, the network device configures one CSI-RS resource, and the CSI-RS resource is configured with two frequency domain resource segments. Specifically, the CSI-RS resource is configured with two frequency start positions. Optionally, the CSI-RS resource may be further configured with two bandwidths, which are respectively associated with the two frequency start positions. The two frequency start positions and the corresponding bandwidths of the CSI-RS resource may be used to determine two CSI-RS resource segments, and the two CSI-RS resource segments are the first CSI-RS resource and the second CSI-RS resource.

[00381] (3) Manner 3: The first configuration information is used to configure a CSI-RS resource.

[00382] After receiving the first configuration information, the terminal device may determine a CSI-RS resource in a first downlink subband in the CSI-RS resource as the first CSI-RS resource, and determine a CSI-RS resource in a second downlink subband in the CSI-RS resource as the second CSI-RS resource.

[00383] Step S1202: The terminal device sends a CSI measurement report to the network device based on the first configuration information, and correspondingly, the network device receives the CSI measurement report from the terminal device.

[00384] In one possible implementation, in a case that a quantity of CSI measurement reports in step S1202 is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource, a quantity of CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00385] In this embodiment of this application, the quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource may be the same as or different from the quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource. For example, in a case that a configuration of the CSI measurement report that includes the measurement result corresponding to the first CSI-RS resource is the same as a configuration of the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource, for example, when measurement quantities are the same, quantities of CPUs corresponding to the two CSI measurement reports may be the same.

[00386] In this embodiment of this application, the measurement result corresponding to the

first CSI-RS resource (or the second CSI-RS resource) may be a measurement result obtained by performing CSI measurement by the terminal device on the first CSI-RS resource (or the second CSI-RS resource). For determining of the first value, refer to determining of O_{CPU} in the foregoing CSI measurement and reporting mechanism. For details, refer to related descriptions in Title 4.

[00387] For example, the quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00388] In another possible implementation, in a case that a quantity of CSI measurement reports in step S1202 is one, and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource, or in a case that a quantity of CSI measurement reports in step S1202 is two, a first CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports includes only a measurement result corresponding to the second CSI-RS resource, a quantity of CPUs corresponding to the CSI measurement report is a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource. In other words, in the foregoing two cases, a quantity of CPUs corresponding to the CSI measurement report may be O_{CPU} defined in the foregoing CSI measurement and reporting mechanism.

[00389] The measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource may be a measurement result obtained by performing CSI measurement by the terminal device on the first CSI-RS resource and the second CSI-RS resource.

[00390] When the CSI measurement report is associated with a periodic or semi-persistent CSI-RS resource, some CSI-RS transmission occasions corresponding to the CSI-RS resource may be on SBFD symbols in some slots, and the other CSI-RS transmission occasions may be on non-SBFD symbols in other slots. An embodiment shown in FIG. 13 shows different manners of configuring a CSI measurement report and a CSI-RS resource associated with the CSI measurement report, and CPU occupation corresponding to different configuration manners. For example, FIG. 13 is a flowchart of yet another measurement reporting method according to an embodiment of this application. The method includes the following steps.

[00391] Step S1301: A network device sends first configuration information to a terminal device, and correspondingly, the terminal device receives the first configuration information from the

network device.

[00392] The first configuration information is used to configure one or two CSI measurement reports and a CSI-RS resource associated with the one or two CSI measurement reports.

[00393] Optionally, the first configuration information has the following four possible implementations.

[00394] (4) Manner 4: The first configuration information is used to configure a CSI measurement report and a CSI-RS resource associated with the CSI measurement report.

[00395] CSI-RS transmission occasions corresponding to the CSI-RS resource are on SBFD symbols or non-SBFD symbols in different slots.

[00396] (5) Manner 5: The first configuration information is used to configure a CSI measurement report and two CSI-RS resources associated with the CSI measurement report.

[00397] A CSI-RS transmission occasion corresponding to a first CSI-RS resource in the two CSI-RS resources is on SBFD symbols in different slots; CSI-RS transmission occasions corresponding to a second CSI-RS resource in the two CSI-RS resources are on non-SBFD symbols in different slots; and the CSI measurement report includes a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

[00398] In Manner 5, the terminal device may perform CSI measurement on each of the first CSI-RS resource and the second CSI-RS resource, to obtain the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource.

[00399] Optionally, in a case that the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on a same reporting occasion of the CSI measurement report, a quantity of CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that includes only the measurement result corresponding to the second CSI-RS resource.

[00400] For determining of the first value, refer to determining of O_{CPU} in the foregoing CSI measurement and reporting mechanism. For details, refer to related descriptions in Title 4. For example, the quantity of CPUs corresponding to the CSI measurement report is twice the first value.

[00401] (6) Manner 6: The first configuration information is used to configure two CSI measurement reports and a CSI-RS resource associated with the two CSI measurement reports.

[00402] A first CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and a second CSI measurement report in the two CSI measurement reports includes only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS resource.

[00403] In Manner 6, the terminal device may perform CSI measurement on the CSI-RS transmission occasion corresponding to the SBFD symbol of the CSI-RS resource, and include the obtained measurement result in the first CSI measurement report. The terminal device may further perform CSI measurement on the CSI-RS transmission occasion corresponding to the non-SBFD symbol of the CSI-RS resource, and include the obtained measurement result in the second CSI measurement report.

[00404] (7) Manner 7: The first configuration information is used to configure two CSI measurement reports and two CSI-RS resources.

[00405] A first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and a second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; CSI-RS transmission occasions corresponding to the first CSI-RS resource are on SBFD symbols in different slots; and CSI-RS transmission occasions corresponding to the second CSI-RS resource are on non-SBFD symbols in different slots.

[00406] In the foregoing Manner 4, Manner 6, or Manner 7, a quantity of CPUs corresponding to the CSI measurement report may be O_{CPU} defined in the foregoing CSI measurement and reporting mechanism.

[00407] Step S1302: The terminal device sends the one or two CSI measurement reports to the network device, and correspondingly, the network device receives the one or two CSI measurement reports from the terminal device.

[00408] It may be understood that the embodiment shown in FIG. 12 describes CSI measurement-related configurations, different measurement reporting manners, and CPU occupation corresponding to the measurement reporting manners from a perspective of frequency domain. The embodiment shown in FIG. 13 describes CSI measurement-related configurations, different measurement reporting manners, and CPU occupation corresponding to the measurement reporting manners from a perspective of time domain. The embodiments shown in FIG. 12 and FIG. 13 may also be implemented jointly. CPU occupation corresponding to different measurement reporting manners is specified, so that the terminal device can correctly process CSI measurement reports in different measurement reporting manners, and it can be ensured that the network device and the terminal device have a consistent understanding of a quantity of CPUs

occupied by the CSI measurement report in the different measurement reporting manners, thereby avoiding a communication error.

[00409] It may be understood that, in above embodiments, the methods and/or the steps implemented by the terminal device may also be implemented by a component (for example, a chip or a circuit) that may be used in a terminal device or an apparatus including a terminal device; and the methods and/or the steps implemented by the network device may also be implemented by a component (for example, a chip or a circuit) that may be used in the network device or an apparatus including the network device.

[00410] It may be understood that, to implement the foregoing functions, the terminal device or the network device includes corresponding hardware structures and/or software modules for performing the functions. A person skilled in the art should easily be aware that, in combination with units and algorithm steps of the examples described in embodiments disclosed in this specification, this application may be implemented by hardware or a combination of hardware and computer software. Whether a function is performed by hardware or hardware driven by computer software depends on particular applications and design constraints of the technical solutions. A person skilled in the art may use different methods to implement the described functions for each particular application, but it should not be considered that the implementation goes beyond the scope of this application.

[00411] In embodiments of this application, functional modules of the terminal device or the network device may be divided based on the foregoing method embodiments. For example, functional modules may be divided corresponding to functions, or two or more functions may be integrated into one processing module. The integrated module may be implemented in a form of hardware, or may be implemented in a form of a software functional module. It is to be noted that, in embodiments of this application, module division is an example, and is merely a logical function division. In actual implementation, there may be another division manner.

[00412] For example, the terminal device in embodiments of this application may be implemented in a form of communication apparatus 10 shown in FIG. 10. The communication apparatus 10 may include a receiving module 1001. Optionally, the communication apparatus 10 may further include a sending module 1002. The communication apparatus 10 is configured to implement functions of the terminal device in the method embodiments shown in FIG. 8, FIG. 12, or FIG. 13, or the communication apparatus 10 is configured to implement functions of the network device in the method embodiments shown in FIG. 8, FIG. 9, FIG. 12, or FIG. 13.

[00413] For example, when the communication apparatus 10 is configured to implement the functions of the terminal device in the method embodiment shown in FIG. 8, the communication apparatus 10 includes a sending module 1002. The receiving module 1001 is configured to receive

first configuration information. The sending module 1002 is configured to send at least one of one or more first-type measurement reports based on the first configuration information.

[00414] For example, when the communication apparatus 10 is configured to implement the functions of the network device in the method embodiment shown in FIG. 8, the communication apparatus 10 includes a sending module 1002. The sending module 1002 is configured to send first configuration information. The receiving module 1001 is configured to receive at least one of one or more first-type measurement reports.

[00415] For example, when the communication apparatus 10 is configured to implement the functions of the network device in the method embodiment shown in FIG. 9, the receiving module 1001 is configured to receive a CSI reporting message.

[00416] For example, when the communication apparatus 10 is configured to implement the functions of the terminal device in the method embodiment shown in FIG. 12, the communication apparatus 10 further includes a sending module 1002. The receiving module 1001 is configured to receive first configuration information, where the first configuration information is used for the communication apparatus 10 to obtain a first CSI-RS resource and a second CSI-RS resource. The sending module 1002 is configured to send a CSI measurement report based on the first configuration information.

[00417] For example, when the communication apparatus 10 is configured to implement the functions of the network device in the method embodiment shown in FIG. 12, the communication apparatus 10 further includes a sending module 1002. The sending module 1002 is configured to send first configuration information, where the first configuration information is used by the terminal device to obtain a first CSI-RS resource and a second CSI-RS resource. The receiving module 1001 is configured to receive a CSI measurement report.

[00418] For example, when the communication apparatus 10 is configured to implement the functions of the terminal device in the method embodiment shown in FIG. 13, the communication apparatus 10 further includes a sending module 1002. The receiving module 1001 is configured to receive first configuration information, where the first configuration information is used to configure one or two CSI measurement reports and a CSI-RS resource associated with the one or two CSI measurement reports. The sending module 1002 is configured to send the one or two CSI measurement reports based on the first configuration information.

[00419] For example, when the communication apparatus 10 is configured to implement the functions of the network device in the method embodiment shown in FIG. 13, the communication apparatus 10 further includes a sending module 1002. The sending module 1002 is configured to send first configuration information, where the first configuration information is used to configure one or two CSI measurement reports and a CSI-RS resource associated with the one or two CSI

measurement reports. The receiving module 1001 is configured to receive the one or two CSI measurement reports.

[00420] For more detailed descriptions of the foregoing receiving module 1001 and the sending module 1002, refer to related descriptions in the method embodiment shown in FIG. 8, FIG. 9, FIG. 12, or FIG. 13.

[00421] For another example, the terminal device in embodiments of this application may be implemented in a form of communication apparatus 1100 shown in FIG. 11. The communication apparatus 1100 is configured to implement functions of the terminal device in the method embodiment shown in FIG. 9. The communication apparatus 1100 may include a sending module 1102 and a measurement module 1103. Optionally, the communication apparatus 1100 may further include a receiving module 1101.

[00422] For example, the measurement module 1103 is configured to perform CSI measurement on an SBFD time unit, to obtain a measurement result; and the sending module 1102 is configured to send a CSI reporting message including the measurement result. For more detailed descriptions of the receiving module 1101, the sending module 1102, and the measurement module 1103, refer to related descriptions in the method embodiment shown in FIG. 9.

[00423] In this embodiment, the communication apparatus 10 and the communication apparatus 1100 are presented in a form of dividing functional modules in an integrated manner. The module herein may be a specific ASIC, a circuit, a processor that executes one or more software or firmware programs, a memory, an integrated logic circuit, and/or another component capable of providing the foregoing functions.

[00424] In a simple embodiment, a person skilled in the art may figure out that the communication apparatus 10 may be in a form of communication apparatus 110 shown in FIG. 7.

[00425] For example, the processor 111 in the communication apparatus 110 shown in FIG. 7 may invoke a program stored in the memory 112, to enable the communication apparatus 10 to perform the measurement reporting method in the foregoing method embodiment. Specifically, some functions/implementation processes of the receiving module 1001 and the sending module 1002 in FIG. 10 may be implemented by using the transceiver 115.

[00426] In a simple embodiment, a person skilled in the art may figure out that the communication apparatus 1100 may be in a form of communication apparatus 110 shown in FIG. 7.

[00427] For example, the processor 111 in the communication apparatus 110 shown in FIG. 7 may invoke a program stored in the memory 112, to enable the communication apparatus 1100 to perform the measurement reporting method in the foregoing method embodiment. Specifically, some functions/implementation processes of the sending module 1102 and the measurement

module 1103 in FIG. 11 may be implemented by using the transceiver 115. Some functions/implementation processes of the measurement module 1103 in FIG. 11 may be implemented by the processor 111 in the communication apparatus 110 shown in FIG. 7 by invoking a program stored in the memory 112.

[00428] Because the communication apparatus 10 and the communication apparatus 1100 provided in this embodiment may perform the foregoing measurement reporting methods, for technical effects that can be achieved by the communication apparatus 10 and the communication apparatus 1100, refer to the foregoing method embodiments. Details are not described herein again.

[00429] It is to be noted that one or more of the foregoing modules or units may be implemented by using software, hardware, or a combination thereof. When any one of the foregoing modules or units is implemented by software, the software exists in a form of a computer program instruction, and is stored in the memory. The processor may be configured to execute the program instruction and implement the foregoing method procedure. The processor may be built into an SoC (system on chip) or an ASIC, or may be an independent semiconductor chip. In addition to the core configured to execute software instructions to perform an operation or processing, the processor may further include a necessary hardware accelerator, for example, a field programmable gate array (field programmable gate array, FPGA), a programmable logic device (programmable logic device, PLD), or a logic circuit that implements a dedicated logic operation.

[00430] When the foregoing modules or units are implemented by using hardware, the hardware may be any one or any combination of a CPU, a microprocessor, a digital signal processing (digital signal processing, DSP) chip, a microcontroller unit (microcontroller unit, MCU), an artificial intelligence processor, an ASIC, a SoC, an FPGA, a PLD, a dedicated digital circuit, a hardware accelerator, or a non-integrated discrete device, and the hardware may run necessary software or does not depend on software to perform the foregoing method procedures.

[00431] Optionally, an embodiment of this application further provides a system on a chip, including: at least one processor and an interface, where the at least one processor is coupled to a memory by using the interface, and when the at least one processor executes a computer program or instructions in the memory, the method in any one of the foregoing method embodiments is performed. In one possible implementation, the communication apparatus further includes the memory. Optionally, the system on a chip may include a chip, or may include a chip and another discrete device. This is not specifically limited in this embodiment of this application.

[00432] All or some of the foregoing embodiments may be implemented by using software, hardware, firmware, or any combination thereof. When a software program is used to implement embodiments, embodiments may be implemented completely or partially in a form of a computer program product. The computer program product includes one or more computer instructions.

When the computer program instructions are loaded and executed on the computer, the procedure or functions according to embodiments of this application are all or partially generated. The computer may be a general-purpose computer, a dedicated computer, a computer network, or other programmable apparatuses. The computer instructions may be stored in a computer-readable storage medium or may be transmitted from a computer-readable storage medium to another computer-readable storage medium. For example, the computer instructions may be transmitted from a website, computer, server, or data center to another website, computer, server, or data center in a wired (for example, a coaxial cable, an optical fiber, or a digital subscriber line (digital subscriber line, DSL)) or wireless (for example, infrared, radio, or microwave) manner. The computer-readable storage medium may be any usable medium accessible by a computer, or a data storage device, such as a server or a data center, integrating one or more usable media. The usable medium may be a magnetic medium (for example, a floppy disk, a hard disk, or a magnetic tape), an optical medium (for example, a DVD), a semiconductor medium (for example, a solid state disk (solid state drive, SSD)), or the like.

[00433] Although this application is described with reference to embodiments, in a process of implementing the claimed application, a person skilled in the art may understand and implement another variation of the disclosed embodiments by viewing the accompanying drawings, disclosed content, and appended claims. In the claims, "comprising" (comprising) does not exclude another component or another step, and "a" or "one" does not exclude a case of a plurality. A single processor or another unit may implement several functions enumerated in the claims. Some measures are recorded in dependent claims that are different from each other, but this does not mean that these measures cannot be combined to produce a better effect.

CLAIMS

1. A measurement reporting method, comprising:

receiving first configuration information, wherein the first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and

sending at least one of the one or more first-type measurement reports based on the first configuration information.

2. The method according to claim 1, wherein one first-type measurement report comprises only CLI measurement information between the terminal devices.

3. The method according to claim 2, wherein a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

4. The method according to claim 1, wherein one first-type measurement report comprises both CSI measurement information and CLI measurement information that is between the terminal devices.

5. The method according to claim 4, wherein a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to a CSI measurement report that comprises only the CSI measurement information.

6. The method according to claim 5, wherein the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

7. The method according to any one of claims 1 to 6, wherein the method further comprises:

receiving a first message, wherein the first message is used to trigger at least one first-type measurement report, wherein

a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from an end of a last symbol in a measurement resource corresponding to the at least one first-type measurement report to the start of the 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

8. The method according to claim 7, wherein the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter

μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

wherein X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device.

9. The method according to claim 7, wherein the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21
3	43	36

or the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

10. The method according to any one of claims 1 to 9, wherein the method further comprises:

sending first indication information, wherein the first indication information indicates the quantity of CPUs corresponding to one first-type measurement report.

11. The method according to any one of claims 2 to 10, wherein the CLI measurement information comprises at least one of the following: a sounding reference signal SRS-reference

signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, wherein the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

12. The method according to any one of claims 4 to 6, wherein the CSI measurement information comprises at least one of the following:

a layer L1-reference signal received power RSRP, an L1-signal to interference plus noise ratio SINR, a channel quality indicator CQI, a rank indication RI, a precoding matrix indicator PMI, a layer indicator LI, a CSI-RS resource indicator CRI, a synchronization signal and physical broadcast channel block resource indicator SSBRI, or a time domain channel property TDCP.

13. The method according to any one of claims 1 to 12, wherein the method further comprises:

sending second indication information or third indication information, wherein

the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurement between the terminal devices.

14. A measurement reporting method, comprising:

sending first configuration information, wherein the first configuration information is used to configure one or more first-type measurement reports, the one or more first-type measurement reports are used for cross link interference CLI measurement and reporting between terminal devices, and the one or more first-type measurement reports belong to channel state information CSI measurement reports; and

receiving at least one of the one or more first-type measurement reports.

15. The method according to claim 14, wherein one first-type measurement report comprises only CLI measurement information between the terminal devices.

16. The method according to claim 15, wherein a quantity of channel state information processing units CPUs corresponding to one first-type measurement report is greater than 0 and less than or equal to 1.

17. The method according to claim 14, wherein one first-type measurement report comprises both CSI measurement information and CLI measurement information that is between the terminal devices.

18. The method according to claim 17, wherein a quantity of CPUs corresponding to one first-type measurement report is greater than a first value, and the first value is a quantity of CPUs

corresponding to a CSI measurement report that comprises only the CSI measurement information.

19. The method according to claim 18, wherein the quantity of CPUs corresponding to one first-type measurement report meets a sum of the first value and a second value, and the second value is greater than 0 and less than or equal to 1.

20. The method according to any one of claims 14 to 19, wherein the method further comprises:

sending a first message, wherein the first message is used to trigger at least one first-type measurement report, wherein

a time interval from an end of a last symbol occupied by a channel carrying the first message to a start of a 1st symbol occupied by a channel carrying the at least one first-type measurement report is a first latency, a time interval from the end of the last symbol in a measurement resource corresponding to the at least one first-type measurement report to the start of the 1st symbol occupied by the channel carrying the at least one first-type measurement report is a second latency, and the first latency and the second latency are determined based on a subcarrier spacing SCS.

21. The method according to claim 20, wherein the CLI measurement between the terminal devices is beam-based measurement, and the first latency Z, the second latency Z', and a parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	X_0
1	33	X_1
2	min(44, X_2+KB_1)	X_2
3	min(97, X_3+KB_2)	X_3
5	min(388, X_5+KB_3)	X_5
6	min(776, X_6+KB_4)	X_6

wherein X_0, X_1, X_2, X_3, X_5, and X_6 are determined based on a beam reporting timing capability of the terminal device, and KB_1, KB_2, KB_3, and KB_4 are determined based on a beam switching timing capability of the terminal device.

22. The method according to claim 20, wherein the CLI measurement between the terminal devices is not beam-based measurement, and the first latency Z, the second latency Z', and parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	10	8
1	13	11
2	25	21

μ	Z	Z'
3	43	36

or the first latency Z, the second latency Z', and parameter μ used to represent the SCS meet the following relationship:

μ	Z	Z'
0	22	16
1	33	30
2	44	42
3	97	85
5	388	340
6	776	680

23. The method according to any one of claims 14 to 22, wherein the method further comprises:

receiving first indication information, wherein the first indication information indicates the quantity of CPUs corresponding to one first-type measurement report.

24. The method according to any one of claims 14 to 23, wherein the CLI measurement information comprises at least one of the following: a sounding reference signal SRS-reference signal received power RSRP, a CLI-received signal strength indicator RSSI, an SRS-signal to interference plus noise ratio SINR, an SRS resource indicator, or a CLI-RSSI resource indicator, wherein the SRS-RSRP is a received power of a received signal of an SRS, the SRS resource indicator is a resource indicator used for SRS-RSRP or SRS-SINR measurement, the CLI-RSSI is an RSSI of CLI, and the CLI-RSSI resource indicator is a resource indicator used for CLI-RSSI measurement.

25. The method according to any one of claims 15 to 24, wherein the method further comprises:

receiving second indication information or third indication information, wherein

the second indication information indicates a quantity of supported simultaneous computations for CLI measurement and CSI measurement, and the third indication information indicates a quantity of supported simultaneous computations for CLI measurement between the terminal devices.

26. A measurement reporting method, comprising:

receiving first configuration information, wherein the first configuration information is used by a terminal device to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a

subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and

sending a CSI measurement report based on the first configuration information.

27. A measurement reporting method, comprising:

sending first configuration information, wherein the first configuration information is used by a terminal device to obtain a first channel state information CSI-reference signal RS resource and a second CSI-RS resource, the first CSI-RS resource is in a first downlink subband on a subband fullduplex SBFD time unit, the second CSI-RS resource is in a second downlink subband on the SBFD time unit, and the first downlink subband and the second downlink subband are non-contiguous in frequency domain; and

receiving a CSI measurement report.

28. The method according to claim 26 or 27, wherein the first configuration information is used to configure two associated CSI-RS resources, one CSI-RS resource of the two associated CSI-RS resources is the first CSI-RS resource, and the other CSI-RS resource is the second CSI-RS resource.

29. The method according to claim 26 or 27, wherein the first configuration information is used to configure one CSI-RS resource, and the CSI-RS resource comprises the first CSI-RS resource and the second CSI-RS resource.

30. The method according to claim 26 or 27, wherein the first configuration information is used to configure one CSI-RS resource, the CSI-RS resource in the first downlink subband in the one CSI-RS resource is the first CSI-RS resource, and the CSI-RS resource in the second downlink subband in the CSI-RS resource is the second CSI-RS resource.

31. The method according to any one of claims 28 to 30, wherein a quantity of CSI measurement reports is one, and the CSI measurement report comprises a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and

a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the second CSI-RS resource.

32. The method according to claim 31, wherein the quantity of CPUs corresponding to the CSI measurement report is twice the first value.

33. The method according to any one of claims 28 to 30, wherein a quantity of CSI measurement reports is one, and the CSI measurement report comprises a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource; and

a quantity of CPUs corresponding to the CSI measurement report is a first value, the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the second CSI-RS resource.

34. The method according to any one of claims 28 to 30, wherein a quantity of CSI measurement reports is two, a first CSI measurement report in the two CSI measurement reports comprises only a measurement result corresponding to the first CSI-RS resource, and a second CSI measurement report in the two CSI measurement reports comprises only a measurement result corresponding to the second CSI-RS resource.

35. A measurement reporting method, comprising:

receiving first configuration information, wherein the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and

sending the one or two CSI measurement reports based on the first configuration information.

36. A measurement reporting method, comprising:

sending first configuration information, wherein the first configuration information is used to configure one or two channel state information CSI measurement reports and a CSI-reference signal RS resource associated with the one or two CSI measurement reports; and

receiving the one or two CSI measurement reports.

37. The method according to claim 36, wherein the first configuration information is used to configure one CSI measurement report and one CSI-RS resource associated with the CSI measurement report, and CSI-RS transmission occasions corresponding to the CSI-RS resource are on subband fullduplex SBFD symbols or non-SBFD symbols in different slots.

38. The method according to claim 36, wherein the first configuration information is used to configure one CSI measurement report and two CSI-RS resources associated with the CSI measurement report;

CSI-RS transmission occasions corresponding to a first CSI-RS resource in the two CSI-RS resources are on SBFD symbols in different slots, and CSI-RS transmission occasions corresponding to a second CSI-RS resource in the two CSI-RS resources are on non-SBFD symbols in different slots; and

the CSI measurement report comprises a measurement result corresponding to the first CSI-RS resource and a measurement result corresponding to the second CSI-RS resource.

39. The method according to claim 38, wherein

the measurement result corresponding to the first CSI-RS resource and the measurement result corresponding to the second CSI-RS resource are reported on a same reporting occasion of the CSI measurement report; and

a quantity of channel state information processing units CPUs corresponding to the CSI measurement report is greater than a first value, and the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the first CSI-RS resource, or the first value is a quantity of CPUs corresponding to the CSI measurement report that comprises only the measurement result corresponding to the second CSI-RS resource.

40. The method according to claim 39, wherein the quantity of CPUs corresponding to the CSI measurement report is twice the first value.

41. The method according to claim 36, wherein the first configuration information is used to configure two CSI measurement reports and one CSI-RS resource associated with the two CSI measurement reports;

a first CSI measurement report in the two CSI measurement reports comprises only a measurement result obtained on a CSI-RS transmission occasion corresponding to an SBFD symbol of the CSI-RS resource; and

a second CSI measurement report in the two CSI measurement reports comprises only a measurement result obtained on a CSI-RS transmission occasion corresponding to a non-SBFD symbol of the CSI-RS resource.

42. The method according to claim 36, wherein the first configuration information is used to configure two CSI measurement reports and two CSI-RS resources;

a first CSI measurement report in the two CSI measurement reports is associated with a first CSI-RS resource in the two CSI-RS resources, and a second CSI measurement report in the two CSI measurement reports is associated with a second CSI-RS resource in the two CSI-RS resources; and

CSI-RS transmission occasions corresponding to the first CSI-RS resource are on SBFD symbols in different slots, and CSI-RS transmission occasions corresponding to the second CSI-RS resource are on non-SBFD symbols in different slots.

43. A communication apparatus, wherein the communication apparatus comprises a module or a unit configured to implement the method according to any one of claims 1 to 13; or a module or a unit configured to implement the method according to any one of claims 14 to 25; or a module

or a unit configured to implement the method according to any one of claims 26 and 28 to 34; or a module or a unit configured to implement the method according to any one of claims 27 to 34; or a module or a unit configured to implement the method according to any one of claims 35 and 37 to 42; or a module or a unit configured to implement the method according to any one of claims 36 to 42.

44. A communication apparatus, comprising a memory and a processor coupled to the memory, wherein the memory is configured to store a program, and the processor is configured to execute the program stored in the memory; and when the communication apparatus runs, the processor runs the program, to enable the communication apparatus to perform the method according to any one of claims 1 to 13, or to enable the communication apparatus to perform the method according to any one of claims 14 to 25, or to enable the communication apparatus to perform the method according to any one of claims 26 and 28 to 34, or to enable the communication apparatus to perform the method according to any one of claims 27 to 34, or to enable the communication apparatus to perform the method according to any one of claims 35 and 37 to 42, or to enable the communication apparatus to perform the method according to any one of claims 36 to 42.

45. A communication system, wherein the communication system comprises a terminal device and a network device, wherein the terminal device is configured to perform the method according to any one of claims 1 to 13, and the network device is configured to perform the method according to any one of claims 14 to 25; or the terminal device is configured to perform the method according to any one of claims 26 and 28 to 34, and the network device is configured to perform the method according to any one of claims 27 to 34; or the terminal device is configured to perform the method according to any one of claims 35 and 37 to 42, and the network device is configured to perform the method according to any one of claims 36 to 42.

46. A computer-readable storage medium, having a computer program stored therein, wherein when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 1 to 13; or when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 14 to 25; or when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 26 and 28 to 34; or when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 27 to 34; or when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 35 and 37 to 42; or when the computer program is executed by a computer, the computer is enabled to perform the method according to any one of claims 36 to 42.

47. A computer program product, wherein the computer program product comprises computer instructions, wherein when the computer instructions are executed on a computer, the computer is enabled to perform the method according to any one of claims 1 to 13, or the computer is enabled to perform the method according to any one of claims 14 to 25, or the computer is enabled to perform the method according to any one of claims 26 and 28 to 34, or the computer is enabled to perform the method according to any one of claims 27 to 34, or the computer is enabled to perform the method according to any one of claims 35 and 37 to 42, or the computer is enabled to perform the method according to any one of claims 36 to 42.