

COMMUNICATION METHOD AND SIDELINK DEVICE

TECHNICAL FIELD

[0001] This application relates to the field of communication technologies, and in particular, to a communication method and a sidelink device.

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BACKGROUND

[0002] Currently, a vehicle may obtain road condition information or receive an information service in time in a communication manner such as vehicle to vehicle (vehicle to vehicle, V2V), vehicle to infrastructure (vehicle to infrastructure, V2I), vehicle to pedestrian (vehicle to pedestrian, V2P), or vehicle to network (vehicle to network, V2N). These communication manners may be collectively referred to as V2X communication.

[0003] In an internet of vehicles system, terminal devices usually communicate with each other by using two resource allocation modes. In one mode, a network device schedules a sidelink transmission resource. In the other mode, a terminal device independently selects a resource. When independently selecting a resource, a terminal device needs to first sense (sensing) resources to identify available resources, and then select a resource from the available resources for data transmission. When sending ranges of two terminal devices cannot cover each other, the two terminal devices cannot discover each other. In this case, it is possible that the two terminal devices select a same resource for information transmission, causing a resource conflict.

SUMMARY

20 [0004] Embodiments of this application provide a communication method and a sidelink device, to reduce resource conflicts in V2X communication.

[0005] According to a first aspect, a communication method is provided, including: a first sidelink device determines first indication information and first sidelink resource information; and the first sidelink device sends the first indication information and the first sidelink

resource information to a second sidelink device.

[0006] The first indication information indicates that the first sidelink resource information includes auxiliary information.

[0007] The auxiliary information is used to assist the second sidelink device in resource
5 selection.

[0008] In a sidelink transmission scenario, the first sidelink device may be a transmit device, and the second sidelink device may be a receive device. The first indication information may have different values, and indicated content may be determined based on a value of the first indication information.

10 **[0009]** In this embodiment of this application, the first sidelink device may send the first indication information and the first sidelink resource information to the second sidelink device. The first indication information indicates that the first sidelink resource information includes the auxiliary information. After receiving the first indication information and the auxiliary information, the second sidelink device can learn about a surrounding related resource status, such as channel
15 measurement information of a resource pool, and a resource occupation status of another communication device with which the second sidelink device cannot directly communicate. The second sidelink device may perform resource selection based on the auxiliary information, to obtain, through resource selection, an available resource that can be used to send information, to avoid a resource conflict with another sidelink communication device.

20 **[0010]** The first indication information may be set in sidelink control information SCI. The sidelink control information SCI includes first level SCI and second level SCI, and the first level SCI includes the first indication information.

[0011] The first indication information may be a reserved bit in the first level SCI, the first indication information may be an unused code point in an MCS field in the first level SCI, or the
25 first indication information may be an unused code point in a period field in the first level SCI. The first indication information may be a field in the second level SCI, the first indication information may be carried in a media access control control element, or the first indication information may be carried in RRC signaling of a sidelink.

[0012] In this embodiment of this application, an existing field in the sidelink control
30 information SCI may be used as the first indication information, without a need to define a new field and use the new field as the first indication information, so that signaling overheads can be

reduced, and a small modification is made to an existing protocol.

[0013] The first sidelink resource information may be included in the sidelink link control information SCI. The first sidelink resource information may be included in the first level SCI, and the first sidelink resource information may be indicated by using a field in the first level SCI.

5 **[0014]** The auxiliary information may include a measurement result of the first sidelink device for a timeslot and/or a sub-channel in the resource pool. After receiving the measurement result of the resource pool, the second sidelink device may perform resource selection in the resource pool based on the measurement result. Alternatively, the auxiliary information may be information about an auxiliary resource, and the auxiliary resource includes at least one of a resource reserved
10 by the first sidelink device for the second sidelink device and a resource excluded by the first sidelink device for the second sidelink device.

[0015] The resource reserved by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by using the auxiliary information, and the time-frequency resource is suggested or recommended for
15 use by the second sidelink device.

[0016] The resource excluded by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by using the auxiliary information, and the time-frequency resource is not suggested or recommended for use by the second sidelink device.

20 **[0017]** A value of the first indication information may be a first value, and the first value indicates that the first sidelink resource information is the auxiliary information. The auxiliary information is used to assist the second sidelink device in resource selection, to avoid a resource conflict with another communication device.

[0018] The first sidelink resource information further includes reservation information, and
25 the reservation information indicates a resource reserved by the first sidelink device.

[0019] A value of the first indication information is a second value, and the second value indicates that the first sidelink resource information includes the auxiliary information and the reservation information.

[0020] The first sidelink device may send the first sidelink resource information in a first time
30 window.

[0021] The first time window includes a plurality of timeslots, and the first sidelink resource

information includes the reservation information sent in a first timeslot and the auxiliary information sent in a second timeslot.

[0022] The first sidelink resource information may include the reservation information sent in one first timeslot and the auxiliary information sent in one or more second timeslots; or

5 the first sidelink resource information includes the reservation information sent in a plurality of first timeslots and the auxiliary information sent in one second timeslot.

[0023] The first sidelink resource information may include the reservation information sent in one first timeslot and the auxiliary information sent in two second timeslots; or the first sidelink resource information includes the reservation information sent in two first timeslots and the auxiliary information sent in one second timeslot.

10 **[0024]** The first sidelink device may send the first sidelink resource information in two timeslots of the first time window. The first sidelink device sends the reservation information in a first timeslot, and sends the auxiliary information in a second timeslot. The first timeslot may be earlier than the second timeslot in terms of time. In this case, the first timeslot may be the first timeslot in the first time window. Alternatively, the first timeslot may be later than the second timeslot in terms of time. In this case, the second timeslot may be the first timeslot in the first time window.

[0025] In the plurality of timeslots of the first time window, resources indicated in some timeslots may be used as reserved resources of the first sidelink device, and resources indicated in some timeslots may be used as auxiliary resources of the second sidelink device. Therefore, when data transmission of the first sidelink device in a current timeslot is correct, a subsequent remaining timeslot originally reserved for retransmission of a data packet in the current timeslot may be used to additionally indicate the auxiliary information, thereby further reducing wastes of reserved resources and improving transmission efficiency. In a possible implementation of the first aspect, 25 the first sidelink device sends second indication information to the second sidelink device. The second indication information indicates the reservation information sent in the first timeslot and the auxiliary information sent in the second timeslot. The second indication information may be in the sidelink control information SCI. The second indication information may have different values, and the reservation information sent in the first timeslot and the auxiliary information in the second timeslot may be indicated by using a value of the second indication information.

30 **[0026]** The second indication information may be sent in the first timeslot or the second

timeslot. The second indication information may be sent in only one first timeslot or only one second timeslot.

[0027] The first time window may include M timeslots, and M is an integer greater than or equal to 3.

5 **[0028]** A value of the second indication information is a first value, and the first value indicates that the first sidelink device is to send the reservation information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G2)^{\text{th}}$ timeslot, where n , $G1$, and $G2$ are all integers.

[0029] A relationship between n , $G1$, and $G2$ may be: $n \leq M-2$, and $1 \leq G1 < G2 \leq M-n$.

10 **[0030]** Alternatively, a value of the second indication information is a second value, and the second value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the reservation information in an $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G4)^{\text{th}}$ timeslot, where n , $G3$, and $G4$ are all integers.

[0031] A relationship between n , $G3$, and $G4$ may be: $1 < n < M$, $G3 < n$, and $G4 \leq M-n$.

15 **[0032]** Alternatively, a value of the second indication information is a third value, and the third value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in an $(n-G6)^{\text{th}}$ timeslot, where n , $G5$, and $G6$ are all integers.

[0033] A relationship between n , $G5$, and $G6$ may be: $2 < n \leq M$, and $1 \leq G5 < G6 < n$.

20 **[0034]** After receiving the second indication information, the second sidelink device can learn whether specific information sent by the first sidelink device in each timeslot is the auxiliary information or the reservation information. Therefore, the second sidelink device can determine, based on the second indication information, whether to detect and when to detect the corresponding auxiliary information.

25 **[0035]** The second indication information may be sent in the n^{th} timeslot of the first time window. In this case, when receiving the second indication information in the n^{th} timeslot, the second sidelink device can learn whether specific information received in a current timeslot is the auxiliary information or the reservation information and whether specific information sent in other timeslots is the auxiliary information or the reservation information.

30 **[0036]** A value of the first indication information may be a third value, the third value indicates that the first sidelink resource information includes the reservation information and the auxiliary

information, and the auxiliary resource is adjacent to the resource reserved by the first sidelink device in frequency domain. The reservation information and the auxiliary information may be resource information sent by the first sidelink device in a same timeslot. The reservation information indicates the resource reserved for the first sidelink device. The auxiliary information indicates the auxiliary resource. The auxiliary resource is the resource reserved by the first sidelink device for the second sidelink device or the resource excluded by the first sidelink device for the second sidelink device.

[0037] That the resource reserved by the first sidelink device is adjacent to the auxiliary resource in frequency domain may mean that a frequency domain end point of the resource reserved by the first sidelink device overlaps a frequency domain start point of the auxiliary resource, or a frequency domain start point of the resource reserved by the first sidelink device overlaps a frequency domain end point of the auxiliary resource. Therefore, discontinuity between the auxiliary resource and the resource reserved by the first sidelink device can be avoided, to reduce resource fragments, and improve resource usage efficiency of an entire system.

[0038] The sidelink control information SCI includes the first level SCI and the second level SCI, the first level SCI includes the reservation information, and the second level SCI includes the auxiliary information.

[0039] A value of the first indication information may be a fourth value, and the fourth value indicates that the first sidelink resource information is the reservation information. In this case, a resource indicated by the first sidelink resource information is the resource reserved by the first sidelink device, and the first sidelink resource information does not include the auxiliary information. When receiving the first indication information and the first sidelink resource information, the second sidelink device can learn that the resource indicated by the first sidelink resource information is reserved by the first sidelink device for the first sidelink device, the first sidelink device is to use the resource to perform data transmission, and the second sidelink device cannot select the resource to perform data transmission.

[0040] The first indication information may indicate, in another form, whether the auxiliary information exists in the first sidelink resource information. When a value of the first indication information falls within a first value range, the first indication information indicates that the first sidelink resource information includes the auxiliary information. The first indication information may be a field, and the field includes a source ID and/or a destination ID in the second level SCI.

[0041] In this embodiment of this application, a process in which the first sidelink device determines the first sidelink resource information includes: the first sidelink device determines the auxiliary information based on a first priority. The first priority is the same as a service priority of the first sidelink device or a service priority of the second sidelink device.

5 **[0042]** The service priority of the first sidelink device is a priority of a service to be transmitted by the first sidelink device on a selected resource, or a priority indicated by the first sidelink device in sidelink link control information SCI. The service priority of the second sidelink device is a priority of a service to be transmitted by the second sidelink device, or a priority indicated by the second sidelink device in sidelink link control information SCI.

10 **[0043]** The first sidelink device may determine the first priority based on first information. The first information includes indication signaling on the resource pool. A plurality of signaling parameter sets are configured on the resource pool, and the indication signaling herein may be one of these signaling parameter sets.

[0044] The first sidelink device may determine the first priority based on second information.

15 The second information includes a measurement result of the first sidelink device for channel quality.

[0045] When the channel quality is less than or equal to a first threshold, the first priority is the same as a higher priority in the service priority of the first sidelink device and the service priority of the second sidelink device; or

20 when the channel quality is greater than or equal to the first threshold, the first priority is the same as a lower priority in the service priority of the first sidelink device and the service priority of the second sidelink device. The first priority is determined, so that the first sidelink device can select a required resource in the auxiliary information in an optimal manner, to improve pertinence of the auxiliary information, thereby improving performance of the entire system.

25 **[0046]** The measurement result of the channel quality may be a channel busy ratio.

[0047] Alternatively, when the channel quality is less than or equal to a first threshold, the first priority is the same as the service priority of the second sidelink device; or when the channel quality is greater than or equal to the first threshold, the first priority is the same as the service priority of the first sidelink device.

30 **[0048]** In this embodiment of this application, when a channel is relatively idle, a relatively large quantity of resources in the system are optional, and the auxiliary resource may be determined

by using the higher priority as the first priority, to select as many resources as possible for the auxiliary information, thereby improving efficiency and quality of the auxiliary information. On the contrary, when a channel is relatively crowded, a relatively small quantity of resources in the system are optional, and the auxiliary resource may be determined by using the lower priority as the first priority, to reduce impact on another higher priority service when a resource is selected for determining the auxiliary information.

[0049] According to a second aspect, a sidelink device is provided, including: a processing module, where the processing module is configured to determine first indication information and first sidelink resource information; and

a transceiver module, where the transceiver module is configured to send the first indication information and the first sidelink resource information to a second sidelink device.

[0050] The first indication information indicates that the first sidelink resource information includes auxiliary information.

[0051] The auxiliary information is used to assist the second sidelink device in resource selection.

[0052] The sidelink device in this embodiment of this application may be a first sidelink device. In a sidelink transmission scenario, the first sidelink device may be a transmit device, and the second sidelink device may be a receive device. The first indication information may have different values, and indicated content may be determined based on a value of the first indication information.

[0053] In this embodiment of this application, the first sidelink device may send the first indication information and the first sidelink resource information to the second sidelink device. The first indication information indicates that the first sidelink resource information includes the auxiliary information. After receiving the first indication information and the auxiliary information, the second sidelink device can learn about a surrounding related resource status, such as channel measurement information of a resource pool, and a resource occupation status of another communication device with which the second sidelink device cannot directly communicate. The second sidelink device may perform resource selection based on the auxiliary information, to obtain, through resource selection, an available resource that can be used to send information, to avoid a resource conflict with another sidelink communication device.

[0054] The first indication information may be set in sidelink control information SCI. The

sidelink control information SCI includes first level SCI and second level SCI, and the first level SCI includes the first indication information.

[0055] The first indication information may be a reserved bit in the first level SCI, the first indication information may be an unused code point in an MCS field in the first level SCI, or the first indication information may be an unused code point in a period field in the first level SCI. The first indication information may be a field in the second level SCI, the first indication information may be carried in a media access control control element, or the first indication information may be carried in RRC signaling of a sidelink. In this embodiment of this application, an existing field in the sidelink control information SCI may be used as the first indication information, without a need to define a new field and use the new field as the first indication information, so that signaling overheads can be reduced.

[0056] The first sidelink resource information may be included in the sidelink link control information SCI. The first sidelink resource information may be included in the first level SCI, and the first sidelink resource information may be indicated by using a field in the first level SCI.

[0057] The auxiliary information may include a measurement result of the first sidelink device for a timeslot and/or a sub-channel in the resource pool. After receiving the measurement result of the resource pool, the second sidelink device may perform resource selection in the resource pool based on the measurement result. Alternatively, the auxiliary information may be information about an auxiliary resource, and the auxiliary resource includes at least one of a resource reserved by the first sidelink device for the second sidelink device and a resource excluded by the first sidelink device for the second sidelink device.

[0058] The resource reserved by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by using the auxiliary information, and the time-frequency resource is suggested or recommended for use by the second sidelink device.

[0059] The resource excluded by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by using the auxiliary information, and the time-frequency resource is not suggested or recommended for use by the second sidelink device.

[0060] A value of the first indication information may be a first value, and the first value indicates that the first sidelink resource information is the auxiliary information. The auxiliary

information is used to assist the second sidelink device in resource selection, to avoid a resource conflict with another communication device.

[0061] The first sidelink resource information further includes reservation information, and the reservation information indicates a resource reserved by the first sidelink device.

5 **[0062]** A value of the first indication information is a second value, and the second value indicates that the first sidelink resource information includes the auxiliary information and the reservation information.

[0063] The first sidelink device may send the first sidelink resource information in a first time window.

10 **[0064]** The first time window includes a plurality of timeslots, and the first sidelink resource information includes the reservation information sent in a first timeslot and the auxiliary information sent in a second timeslot.

[0065] The first sidelink resource information may include the reservation information sent in one first timeslot and the auxiliary information sent in one or more second timeslots; or

15 the first sidelink resource information includes the reservation information sent in a plurality of first timeslots and the auxiliary information sent in one second timeslot.

[0066] The first sidelink resource information may include the reservation information sent in one first timeslot and the auxiliary information sent in two second timeslots; or the first sidelink resource information includes the reservation information sent in two first timeslots and the auxiliary information sent in one second timeslot.

20 **[0067]** The transceiver module of the first sidelink device may send the first sidelink resource information in two timeslots of the first time window. The transceiver module of the first sidelink device sends the reservation information in a first timeslot, and sends the auxiliary information in a second timeslot. The first timeslot may be earlier than the second timeslot in terms of time. In
25 this case, the first timeslot may be the first timeslot in the first time window. Alternatively, the first timeslot may be later than the second timeslot in terms of time. In this case, the second timeslot may be the first timeslot in the first time window.

[0068] In the plurality of timeslots of the first time window, resources indicated in some timeslots may be used as reserved resources of the first sidelink device, and resources indicated in
30 some timeslots may be used as auxiliary resources of the second sidelink device. Therefore, when data transmission of the first sidelink device in a current timeslot is correct, a subsequent remaining

timeslot originally reserved for retransmission of a data packet in the current timeslot may be used to additionally indicate the auxiliary information, thereby further reducing wastes of reserved resources and improving transmission efficiency.

[0069] In a possible implementation of the first aspect, the transceiver module of the first sidelink device sends second indication information to the second sidelink device. The second indication information indicates the reservation information sent in the first timeslot and the auxiliary information sent in the second timeslot. The second indication information may be in the sidelink control information SCI. The second indication information may have different values, and the reservation information sent in the first timeslot and the auxiliary information in the second timeslot may be indicated by using a value of the second indication information.

[0070] The second indication information may be sent in the first timeslot or the second timeslot. The second indication information may be sent in only one first timeslot or only one second timeslot.

[0071] The first time window may include M timeslots, and M is an integer greater than or equal to 3.

[0072] A value of the second indication information is a first value, and the first value indicates that the transceiver module is to send the reservation information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G2)^{\text{th}}$ timeslot, where n, G1, and G2 are all integers.

[0073] A relationship between n, G1, and G2 may be: $n \leq M-2$, and $1 \leq G1 < G2 \leq M-n$.

[0074] Alternatively, a value of the second indication information is a second value, and the second value indicates that the transceiver module is to send the auxiliary information in an n^{th} timeslot of the first time window, send the reservation information in an $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G4)^{\text{th}}$ timeslot, where n, G3, and G4 are all integers.

[0075] A relationship between n, G3, and G4 may be: $1 < n < M$, $G3 < n$, and $G4 \leq M-n$.

[0076] Alternatively, a value of the second indication information is a third value, and the third value indicates that the transceiver module is to send the auxiliary information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in an $(n-G6)^{\text{th}}$ timeslot, where n, G5, and G6 are all integers.

[0077] A relationship between n, G5, and G6 may be: $2 < n \leq M$, and $1 \leq G5 < G6 < n$.

[0078] After receiving the second indication information, the second sidelink device can learn

whether specific information sent by the first sidelink device in each timeslot is the auxiliary information or the reservation information. Therefore, the second sidelink device can determine, based on the second indication information, whether to detect and when to detect the corresponding auxiliary information.

5 **[0079]** The second indication information may be sent in the n^{th} timeslot of the first time window. In this case, when receiving the second indication information in the n^{th} timeslot, the second sidelink device can learn whether specific information received in a current timeslot is the auxiliary information or the reservation information and whether specific information sent in other timeslots is the auxiliary information or the reservation information.

10 **[0080]** A value of the first indication information may be a third value, the third value indicates that the first sidelink resource information includes the reservation information and the auxiliary information, and the auxiliary resource is adjacent to the resource reserved by the first sidelink device in frequency domain. The reservation information and the auxiliary information may be resource information sent by the first sidelink device in a same timeslot. The reservation
15 information indicates the resource reserved for the first sidelink device. The auxiliary information indicates the auxiliary resource. The auxiliary resource is the resource reserved by the first sidelink device for the second sidelink device or the resource excluded by the first sidelink device for the second sidelink device.

20 **[0081]** That the resource reserved by the first sidelink device is adjacent to the auxiliary resource in frequency domain may mean that a frequency domain end point of the resource reserved by the first sidelink device overlaps a frequency domain start point of the auxiliary resource, or a frequency domain start point of the resource reserved by the first sidelink device overlaps a frequency domain end point of the auxiliary resource. Therefore, discontinuity between the auxiliary resource and the resource reserved by the first sidelink device can be avoided, to
25 reduce resource fragments, and improve resource usage efficiency of an entire system.

30 **[0082]** The sidelink control information SCI includes the first level SCI and the second level SCI, the first level SCI includes the reservation information, and the second level SCI includes the auxiliary information.

30 **[0083]** Alternatively, a value of the first indication information may be a fourth value, and the fourth value indicates that the first sidelink resource information is the reservation information. In this case, a resource indicated by the first sidelink resource information is the resource reserved

by the first sidelink device, and the first sidelink resource information does not include the auxiliary information. When receiving the first indication information and the first sidelink resource information, the second sidelink device can learn that the resource indicated by the first sidelink resource information is reserved by the first sidelink device for the first sidelink device, the first sidelink device is to use the resource to perform data transmission, and the second sidelink device cannot select the resource to perform data transmission.

[0084] The first indication information may indicate, in another form, whether the auxiliary information exists in the first sidelink resource information. When a value of the first indication information falls within a first value range, the first indication information indicates that the first sidelink resource information includes the auxiliary information. The first indication information may be a field, and the field includes a source ID and/or a destination ID in the second level SCI.

[0085] In this embodiment of this application, a process in which the processing module of the first sidelink device determines the first sidelink resource information includes: the processing module determines the auxiliary information based on a first priority. The first priority is the same as a service priority of the first sidelink device or a service priority of the second sidelink device.

[0086] The service priority of the first sidelink device is a priority of a service to be transmitted by the first sidelink device on a selected resource, or a priority indicated by the first sidelink device in sidelink link control information SCI. The service priority of the second sidelink device is a priority of a service to be transmitted by the second sidelink device, or a priority indicated by the second sidelink device in sidelink link control information SCI.

[0087] The processing module may determine the first priority based on first information. The first information includes indication selection signaling on the resource pool. A plurality of signaling parameter sets are configured on the resource pool, and the indication signaling in the first information herein may be one of these signaling parameter sets.

[0088] The processing module may determine the first priority based on second information. The second information includes a measurement result of the first sidelink device for channel quality.

[0089] When the channel quality is less than or equal to a first threshold, the first priority is the same as a higher priority in the service priority of the first sidelink device and the service priority of the second sidelink device; or

when the channel quality is greater than or equal to the first threshold, the first priority

is the same as a lower priority in the service priority of the first sidelink device and the service priority of the second sidelink device. The first priority is determined, so that the first sidelink device can select a required resource in the auxiliary information in an optimal manner, to improve pertinence of the auxiliary information, thereby improving performance of the entire system.

5 **[0090]** The measurement result of the channel quality may be a channel busy ratio.

[0091] Alternatively, when the channel quality is less than or equal to a first threshold, the first priority is the same as the service priority of the second sidelink device; or when the channel quality is greater than or equal to the first threshold, the first priority is the same as the service priority of the first sidelink device. In this embodiment of this application, when a channel is relatively idle, a relatively large quantity of resources in the system are optional, and the auxiliary resource may be determined by using the higher priority as the first priority, to select as many resources as possible for the auxiliary information, thereby improving efficiency and quality of the auxiliary information. On the contrary, when a channel is relatively crowded, a relatively small quantity of resources in the system are optional, and the auxiliary resource may be determined by using the lower priority as the first priority, to reduce impact on another higher priority service when a resource is selected for determining the auxiliary information.

[0092] According to a third aspect, a sidelink device is provided, including: a transceiver module, configured to receive first indication information and first sidelink resource information that are sent by a first sidelink device, where

20 the first indication information indicates that the first sidelink resource information includes auxiliary information; and

 the auxiliary information is used to assist the sidelink device in resource selection; and
 a processing module, configured to select a resource based on the first indication information and the auxiliary information.

25 **[0093]** According to a fourth aspect, a communication apparatus is provided, including a transceiver and a processor. The transceiver is configured to execute information receiving and sending instructions. The processor is configured to perform other steps. Specifically, the communication apparatus is configured to perform the method according to any one of the first aspect and the possible implementations of the first aspect.

30 **[0094]** According to a fifth aspect, a computer readable storage medium is provided. A computer program is stored in the computer readable storage medium. The program is executed

by a processor to implement the method according to any one of the first aspect and the possible implementations of the first aspect.

[0095] According to a sixth aspect, a terminal device is provided. The terminal device includes a memory and a processor. The memory is configured to store instructions. The processor is configured to execute the instructions stored in the memory, and execution of the instructions stored in the memory enables the processor to perform the method according to any one of the first aspect and the possible implementations of the first aspect.

[0096] According to a seventh aspect, a communication system is provided, including the sidelink device according to the second aspect and the sidelink device according to the third aspect.

[0097] According to an eighth aspect, a computer program product including instructions is provided. The computer program product is configured to store a computer program. When the computer program is run on a computer, the computer is enabled to perform the method according to any one of the first aspect and the possible implementations of the first aspect.

BRIEF DESCRIPTION OF DRAWINGS

[0098] FIG. 1 is a schematic diagram of a communication system applicable to a communication method according to an embodiment of this application;

[0099] FIG. 2 is a schematic diagram of a hidden terminal according to an embodiment of this application;

[00100] FIG. 3 is a flowchart of a communication method according to an embodiment of this application;

[00101] FIG. 4 is a schematic diagram in which a first sidelink device sends first sidelink resource information according to an embodiment of this application;

[00102] FIG. 5a to FIG. 5c are other schematic diagrams in which a first sidelink device sends first sidelink resource information according to embodiments of this application;

[00103] FIG. 6 is a schematic diagram of a simplified structure of a terminal device according to an embodiment of this application;

[00104] FIG. 7 is a schematic diagram of a structure of a sidelink device according to an embodiment of this application;

[00105] FIG. 8 is a schematic diagram of another structure of a sidelink device according to an

embodiment of this application; and

[00106] FIG. 9 is a schematic diagram of another structure of a sidelink device according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[00107] To make objectives, technical solution, and advantages of embodiments of this application clearer, the following further describes embodiments of this application in detail with reference to the accompanying drawings.

[00108] The following describes some terms in embodiments of this application, to facilitate understanding of a person skilled in the art.

[00109] 1. A terminal device in this application includes a device that provides a user with voice, a device that provides a user with data connectivity, or a device that provides a user with voice and data connectivity. For example, the terminal device may include a handheld device with a wireless connection function or a processing device connected to a wireless modem. The terminal device may be a terminal for short. The terminal may communicate with a core network by using a radio access network (radio access network, RAN), and exchange voice or data with the RAN or exchange voice and data with the RAN. The terminal may include user equipment (user equipment, UE), a wireless terminal, a mobile terminal, a device-to-device (device-to-device, D2D) terminal, a vehicle to everything (vehicle to everything, V2X) terminal, a roadside unit (road side unit, RSU), a machine-to-machine/machine type communication (machine-to-machine/machine-type communication, M2M/MTC) terminal, an internet of things (internet of things, IoT) terminal, a subscriber unit (subscriber unit), a subscriber station (subscriber station), a mobile station (mobile station), a remote station (remote station), an access point (access point, AP), a remote terminal (remote terminal), an access terminal (access terminal), a user terminal (user terminal), a user agent (user agent), user device (user device), or the like. The terminal may include a mobile phone (also referred to as a "cellular" phone), a computer with a mobile terminal, a portable, pocket-sized, handheld, or computer built-in mobile apparatus, or the like. For example, the terminal device may be a device such as a personal communication service (personal communication service, PCS) phone, a cordless telephone set, a session initiation protocol (session initiation protocol, SIP) phone, a wireless local loop (wireless local loop, WLL) station, or a personal digital assistant

(personal digital assistant, PDA). The terminal device alternatively includes a limited device, for example, a device having low power consumption, a device having a limited storage capability, or a device having a limited computing capability. For example, the terminal device includes an information sensing device such as a barcode, a radio frequency identification (radio frequency identification, RFID), a sensor, a global positioning system (global positioning system, GPS), or a laser scanner.

[00110] As an example instead of a limitation, in embodiments of this application, the terminal device may alternatively be a wearable device. The wearable device may also be referred to as a wearable intelligent device, an intelligent wearable device, or the like, and is a general term of wearable devices that are intelligently designed and developed for daily wear by using a wearable technology, for example, glasses, gloves, watches, clothes, and shoes. The wearable device is a portable device that is directly worn on a body or integrated into clothes or an accessory of a user. The wearable device is not merely a hardware device, but is used to implement a powerful function through software support, data interaction, and cloud interaction. In a broad sense, wearable intelligent devices include full-featured and large-sized devices that can implement complete or partial functions without depending on smartphones, for example, smart watches or smart glasses, and devices that focus on only one type of application function and need to work with other devices such as smartphones, such as various smart bands, smart helmets, or smart jewelry for monitoring physical signs.

[00111] If the various terminals described above are located in a vehicle (for example, placed in the vehicle or installed in the vehicle), the terminals may be all considered as vehicle-mounted terminals. For example, the vehicle-mounted terminal is also referred to as an on-board unit (on-board unit, OBU).

[00112] In the embodiments of this application, an apparatus for implementing a function of the terminal may be the terminal, or may be a circuit that can support the terminal in implementing the function, for example, a circuit applicable to a chip system. The chip system can be installed in the terminal. In embodiments of this application, the chip system may include a chip, or may include a chip and another discrete component. In the technical solutions provided in the embodiments of this application, the technical solutions provided in the embodiments of this application are described by using an example in which an apparatus for implementing a function of a terminal is the terminal.

[00113] 2. A network device in this application may include a radio access network (radio access network, RAN) device, such as a base station (for example, an access point). The network device may be a device that communicates with a terminal device via an air interface in an access network, or a network device, namely, a roadside unit (road side unit, RSU), in a vehicle to everything (vehicle-to-everything, V2X) technology. The base station may be configured to mutually convert a received over-the-air frame and an IP packet and serve as a router between the terminal and a rest portion of the access network, where the rest portion of the access network may include an IP network. The RSU may be a fixed infrastructure entity supporting a V2X application, and may exchange a message with another entity supporting the V2X application. The network device may further coordinate attribute management of the air interface. For example, the network device may include an evolved NodeB (NodeB, eNB, or e-NodeB, evolutionary Node B) in a long term evolution (long term evolution, LTE) system or a long term evolution-advanced (long term evolution-advanced, LTE-A) system, may include a next generation NodeB (next generation node B, gNB) in an evolved packet core (evolved packet core, EPC) network, a 5th generation (the 5th generation, 5G) communication technology, a new radio (new radio, NR) system (an NR system for short), or may include a centralized unit (centralized unit, CU) and a distributed unit (distributed unit, DU) in a cloud radio access network (cloud radio access network, Cloud RAN) system. This is not limited in this embodiment of this application. The network device may alternatively include a core network device. The core network device includes, for example, an access and mobility management function (access and mobility management function, AMF). It should be noted that an RSU may be an RSU of a network type, or may be an RSU of a terminal device type. When being used as an RSU of a network type, the RSU performs a function of a device of the network type. When being used as an RSU of a terminal device type, the RSU performs a function of a terminal device.

[00114] 3. Sidelink (Sidelink, SL)

[00115] In V2X, a terminal device may perform communication in two manners. In a first manner, communication is performed between terminal devices by using a Uu interface. The Uu interface is a wireless interface between a terminal device and a network device, and communication between terminal devices requires forwarding by a node such as a network device. In a second manner, sidelink communication is performed between terminal devices, that is, direct communication may be performed between the terminal devices without forwarding by a network

device. In this case, a direct link between terminal devices is referred to as a sidelink.

[00116] Usually, in a sidelink technology, direct information transmission may be performed between terminal devices by using a PC5 interface between the terminal devices. In this application, the sidelink may also be represented by using a side link. The two terms have a same meaning, and both are English representations in this application. This technology can provide information interaction within a coverage service area of a network device, and can also allow information interaction in a place without network device coverage. A terminal device authorized to be used for special communication can use the sidelink communication manner. Certainly, the sidelink communication may be used for transmission of service data of intelligent traffic, or may be used for transmission of a mobile internet service. This is not limited in this application.

[00117] 4. Sidelink control information (Sidelink Control Information, SCI)

[00118] The sidelink control information includes sidelink scheduling information or necessary indication information used during sidelink transmission, for example, indication information of a time-frequency resource block used during transmission, a modulation and coding scheme, a source identifier ID, and a target identifier ID. In NR, sidelink control information of V2X is sent in two stages. First stage SCI (the first stage SCI) is carried on a physical sidelink control channel (Physical Sidelink Control Channel, PSCCH) and includes information for a sensing operation and information about PSSCH resource allocation. The first stage SCI may also be referred to as first level SCI.

[00119] Second stage SCI is carried on a physical sidelink shared channel (Physical Sidelink Shared Channel, PSSCH). The second stage SCI (the second stage SCI) carries information required for identifying and/or decoding an associated sidelink shared channel (Sidelink Shared Channel, SL-SCH), indication information of a hybrid automatic repeat request (Hybrid Automatic Repeat Request, HARQ), trigger information of channel state information (Channel State Information, CSI) feedback, and the like. The second stage SCI may also be referred to as second level SCI.

[00120] 5. Resource pool (Resource Pool)

[00121] In V2X, a network device may configure a resource pool for SL communication of a V2X terminal device. One resource pool is a time-frequency resource set. In V2X, two resource allocation modes are defined:

[00122] Mode 1: A network device schedules or configures a sidelink resource for a terminal

device to perform sidelink transmission.

[00123] Mode 2: A terminal device independently selects a resource.

[00124] 5-1. Mode 2 (Mode 2)

[00125] A basic manner of the mode 2 is that UE senses, in a (pre)configured resource pool, specific resources that are not used by other UE, and selects an appropriate quantity of such resources for transmission of the UE. In the mode 2, V2X supports resource sensing (Sensing) and selection or reselection processes. In the sensing process, SCI may be further demodulated based on demodulation of SCI of another terminal device or a measurement result of another sidelink, to reflect a resource usage status on a sidelink. In the resource selection or reselection process, a resource used for sidelink transmission may be determined based on a result of the foregoing sensing process.

[00126] 6. Timeslot (Time Slot)

[00127] In an NR system, the timeslot is a minimum scheduling unit of time. The time is divided into periodic frames, and each frame is further divided into timeslots. Frames or timeslots do not overlap each other. Each timeslot is one basic communication unit. Duration of the timeslot is determined based on a subcarrier spacing used during transmission. For example, for a subcarrier spacing of 15 kHz, duration of one timeslot may be 1 ms. For another example, for a subcarrier spacing of 30 kHz, duration of one timeslot may be 0.5 ms. For another example, for a subcarrier spacing of 60 kHz, duration of one timeslot may be 0.25 ms. For another example, for a subcarrier spacing of 120 kHz, duration of one timeslot may be 0.125 ms. Optionally, when one timeslot is used as a basic scheduling unit, all symbols of one timeslot may be used for transmission, or some symbols of one timeslot may be used for transmission. This is not limited in the present invention. For example, a quantity of symbols in one timeslot may be 12 or 14. In an example of 14 symbols, the last symbol may be a symbol used for sending-receiving conversion. In this case, only 13 symbols are used for sidelink transmission.

[00128] 7. Channel busy ratio (Channel Busy Ratio, CBR)

[00129] A definition or description of a CBR on a resource pool is used as an example. The CBR may be defined as a ratio of a quantity of unavailable sub-channels in all sub-channels in a resource pool to a quantity of all sub-channels. The unavailable sub-channel may be determined in the following manner: The terminal device measures a sub-channel. If a measurement value exceeds a configured or preconfigured preset threshold, it indicates that the sub-channel is

unavailable; or if a measurement value is lower than the preset threshold, it indicates that the sub-channel is available. The measurement value is, for example, a value of a received signal strength indicator (Received Signal Strength Indicator, RSSI) or reference signal received power (Reference Signal Received Power, RSRP).

5 **[00130]** For example, if a measured RSRP or RSSI of a sub-channel is higher than the preset threshold, it indicates that the sub-channel is unavailable; or if an RSRP or RSSI of a sub-channel is lower than the preset threshold, it indicates that the sub-channel is available. A larger value of the CBR indicates a more crowded resource pool and lower reliability during transmission. A smaller value of the CBR indicates an idler resource pool and higher reliability during transmission.

10 **[00131]** 8. Service priority

[00132] The service priority is a priority of a to-be-transmitted service. A value of the priority may be determined based on a quality of service requirement of the service. The quality of service requirement includes one or more of a delay requirement, a communication distance requirement, a reliability requirement, and a rate requirement. A higher service priority indicates a more
15 important service. The service priority may be reflected by a priority of logic information. In a sending message that indicates a service data packet, signaling in SCI may indicate a service priority. A smaller value of the priority indicated by the signaling in the SCI indicates a higher service priority. For example, when the priority indicated in the SCI is 1, a priority of corresponding service data is the highest; or when the priority indicated in the SCI is 8, a priority
20 of corresponding service data is the lowest.

[00133] 9. The technical solutions in the embodiments of this application are applicable to various communication systems, for example, an LTE system, a worldwide interoperability for microwave access (Worldwide Interoperability For Microwave Access, WiMAX) communication system, a 5th generation (5th Generation, 5G) system such as NR, and a future communication
25 system such as a 6G system.

[00134] All aspects, embodiments, or features are presented in this application by describing a system that may include a plurality of devices, components, modules, and the like. It should be appreciated and understood that, each system may include another device, component, module, and the like, and/or may not include all devices, components, modules, and the like discussed with
30 reference to the accompanying drawings. In addition, a combination of these solutions may be used.

[00135] A network architecture and a service scenario described in embodiments of this application are intended to describe the technical solutions in embodiments of this application more clearly, and do not constitute any limitation on the technical solutions provided in embodiments of this application. A person of ordinary skill in the art may know that with evolution
5 of the network architecture and emergence of a new service scenario, the technical solutions provided in embodiments of this application are also applicable to similar technical problems.

[00136] For ease of understanding embodiments of this application, a communication system shown in FIG. 1 is first used as an example to describe in detail a communication system applicable to embodiments of this application. FIG. 1 is a schematic diagram of a communication system
10 applicable to a communication method according to an embodiment of this application. As shown in FIG. 1, a communication system 100 includes a plurality of terminal devices, for example, a terminal device 101 to a terminal device 103. The terminal device 101, the terminal device 102, and the terminal device 103 may directly communicate with each other. For example, the terminal device 101 and the terminal device 102 may separately or simultaneously send data to the terminal
15 device 103. The wireless communication device further includes one or more network devices, for example, a network device 104 in FIG. 1. The terminal device 101 to the terminal device 103 all can communicate with the network device 104. For example, in FIG. 1, the network device 104 communicates with the terminal device 103.

[00137] FIG. 1 schematically shows the terminal device 101 to the terminal device 103 and the
20 network device 104 merely for ease of understanding. However, this does not constitute any limitation on this application. Alternatively, the wireless communication system may include more network devices, or may include more or fewer terminal devices. This is not limited in this application.

[00138] The following describes the embodiments of this application in detail with reference to
25 the accompanying drawings.

[00139] In the embodiments of this application, sidelink transmission is used as an example. A resource used by a terminal device during data transmission may be scheduled based on a network device, or may be independently selected by the terminal device. When the terminal device determines a resource in an independent selection manner, a hidden terminal problem (Hidden
30 Terminal Problem, HTP) is caused.

[00140] The following briefly describes a hidden terminal.

[00141] FIG. 2 is a schematic diagram of a hidden terminal according to an embodiment of this application. Referring to FIG. 2, a terminal device B and a terminal device C are two nodes, and both the two nodes can communicate with a terminal device A. An elliptical dashed-line box in which the terminal device B is located indicates an information sending/receiving range of the terminal device B. An elliptical dashed-line box in which the terminal device C is located indicates an information sending/receiving range of the terminal device C. In FIG. 2, because the information sending/receiving ranges of the terminal device B and the terminal device C cannot cover each other, the terminal device B and the terminal device C cannot directly communicate with each other to discover each other. When the terminal device B selects a resource to perform information transmission with the terminal device A, it is possible that the terminal device C also detects the resource in an independent sensing process, and also expects to select the resource to perform information transmission. Because the terminal device B and the terminal device C cannot communicate with each other, for the resource, the terminal device C may mistakenly consider that a channel is idle and send information on the resource. In this case, interference is caused to the terminal device B, and then a resource conflict is caused.

[00142] Based on this, the embodiments of the present invention provide a communication method, to reduce a probability that a resource conflict occurs when a terminal device performs sensing, thereby improving system reliability.

[00143] FIG. 3 is a flowchart of a communication method according to an embodiment of this application. With reference to FIG. 3, the following describes in detail the communication method provided in this embodiment of this application. The communication method includes the following steps:

[00144] S301: A first sidelink device determines first indication information and first sidelink resource information.

[00145] S302: The first sidelink device sends the first indication information and the first sidelink resource information to a second sidelink device, where the first indication information indicates that the first sidelink resource information includes auxiliary information, and the auxiliary information is used to assist the second sidelink device in resource selection.

[00146] In this embodiment of this application, a sidelink transmission technology is used as an example for description. In a sidelink transmission scenario, the first sidelink device may be a transmit device, and the second sidelink device may be a receive device. The first sidelink device

and the second sidelink device may be devices of a same type. For example, the first sidelink device and the second sidelink device may be terminal devices. As an example in which both the first sidelink device and the second sidelink device are terminal devices, the first sidelink device may be an OBU, and the second sidelink device may be an RSU of a terminal type; or the first
5 sidelink device is an RSU of a terminal type, and the second sidelink device is an OBU. Alternatively, the first sidelink device and the second sidelink device may be network devices.

[00147] In this embodiment of this application, the first sidelink device may send the first indication information and the first sidelink resource information to the second sidelink device. The first indication information indicates that the first sidelink resource information includes the
10 auxiliary information. After receiving the first indication information and the auxiliary information, the second sidelink device can learn about a related resource status, such as channel measurement information of a resource pool, and a resource occupation status of another communication device with which the second sidelink device cannot directly communicate. The second sidelink device may perform resource selection based on the auxiliary information, to obtain, through resource
15 selection, an available resource that can be used to send information, to avoid a resource conflict with another communication device.

[00148] The following specifically describes step 301 and step 302 with reference to example optional implementations.

[00149] For the first sidelink device and the second sidelink device in this embodiment of this
20 application, in a scenario of the mode 2, the first sidelink device may determine a resource, and sends information about the determined resource to the second sidelink device. The second sidelink device performs independent resource selection with reference to the received information about the resource, so that the second sidelink device determines, through independent resource selection, a resource that needs to be used by the second sidelink device. In this embodiment of
25 this application, the first sidelink device may be the terminal device A in FIG. 2, and the second sidelink device may be the terminal device B or the terminal device C in FIG. 2. It should be noted that this is merely an example. Alternatively, the first sidelink device and the second sidelink device may be any two sidelink communication devices on a sidelink.

[00150] The first indication information may have different values, and indicated content may
30 be determined based on a value. The first indication information has a first value, and the first value indicates that a first sidelink resource is the auxiliary information. The first indication

information may be a field in sidelink control information SCI. The following briefly describes main content of the sidelink control information SCI.

[00151] The sidelink control information SCI may include first level SCI and second level SCI. The first SCI and the second SCI may be sent in two stages. The first level SCI is carried on a PSCCH and includes information for a sensing operation and information about PSSCH resource allocation.

[00152] Table 1 shows some content of first level SCI according to an embodiment of this application. Table 1 is an example rather than a limitation, and the first level SCI may further include other content not shown in Table 1. The first level SCI in this embodiment of this application may alternatively have content and a format that are different from those in Table 1.

Table 1: Some content of the first level SCI

Field	Bit
RA: frequency	6 to 9
RA: time	5 to 9
Period	3 or 4
MCS	5
Reserved bits	2 to 4

[00153] In Table 1, "Field" in the first column indicates main fields in the first level SCI, and "Bit" in the second column indicates a maximum quantity of bits available for the field. The "RA: frequency" field in the second row in Table 1 indicates frequency domain information of resource allocation (Resource Allocation, RA), and 6 bits to 9 bits are available for the information. The "RA: time" field in the third row in Table 1 indicates time domain information of the resource allocation, and 5 bits to 9 bits are available for the information. "Period" in the fourth row in Table 1 indicates period information of the resource allocation, and 3 bits or 4 bits are available for the information. The MCS field in the fifth row in Table 1 indicates a modulation and coding scheme (Modulation And Coding Scheme, MCS), and 5 bits are available for the information. The "Reserved bits" field in the sixth row in Table 1 is a reserved field or reserved bits, and 2 bits to 4 bits are available for the field.

[00154] According to main content that is of the first level SCI and that is shown in Table 1, the

first indication information may be a reserved bit in the first level SCI. Alternatively, the first indication information may be an unused code point (code points) in the MCS field in the first level SCI. The unused code point in the MCS field is described by using an example. It may be learned from Table 1 that 5 bits are available for the MCS field. When the MCS field uses only fewer than 5 bits to indicate the modulation and coding scheme, an unused code point exists. In this case, the first indication information may be indicated by using the unused code point in the MCS field. For example, if the MCS field uses 3 bits to indicate the modulation and coding scheme, the remaining 2 bits may be used as the first indication information to indicate that the first sidelink resource information includes the auxiliary information.

[00155] Alternatively, the first indication information may be an unused code point in the period field in the first level SCI. For example, valid values of the period field are as follows:

{0-99, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000} ms

[00156] Assuming that M period values are configured in a radio resource control (Radio Resource Control, RRC) message or a system message, 16-M are unused code points of the period field. For example, if M=11, 5 code points can indicate another state or other information.

[00157] Alternatively, the first indication information may be a field in the second level SCI. A field may be added to the second level SCI as the first indication information, or a new format of the second level SCI may be defined, to be used as the first indication information. For example, a format of the second level SCI is SCI 2-A or SCI 2-B. Herein, SCI 2-C may be defined to indicate the first indication information. Optionally, a time-frequency resource location and/or size of the SCI 2-C may be different from those of SCI 2-A and SCI 2-B. Optionally, the SCI 2-C falls within a time-frequency resource occupied by a PSSCH.

[00158] Alternatively, the first indication information may be carried in a media access control control element (Media Access Control control element, MAC CE), or the first indication information may be carried in RRC signaling of a sidelink, where the RRC signaling is sometimes also referred to as PC5-RRC.

[00159] The first indication information may have different values, and different values may indicate different indicated content. A value of the first indication information may be a first value. For example, the first value may be "01". The first value indicates that the first sidelink resource information sent by the first sidelink device is the auxiliary information.

[00160] In this embodiment of this application, the first sidelink device sends the first indication

information and the first sidelink resource information. The first sidelink device may sense, in a configured or preconfigured resource pool, specific resources that are not used by another terminal device, or specific resources that are used by another terminal device, or the first sidelink device may obtain information about a usage status of the resource pool. Therefore, the first sidelink device can determine the first sidelink resource information. The first sidelink resource information includes the auxiliary information. The second sidelink device performs independent resource selection, and receives the first sidelink resource information and the first indication information. The first indication information indicates that the first sidelink resource information includes the auxiliary information, and the auxiliary information is used to assist the second sidelink device in resource selection, to avoid a resource conflict with another communication device.

[00161] The auxiliary information may include a measurement result of the first sidelink device for a timeslot and/or a sub-channel in the resource pool. After receiving the measurement result of the resource pool, the second sidelink device may perform resource selection in the resource pool based on the measurement result.

[00162] Alternatively, the auxiliary information may be information about an auxiliary resource, and the auxiliary resource includes at least one of a resource reserved by the first sidelink device for the second sidelink device and a resource excluded by the first sidelink device for the second sidelink device.

[00163] The resource reserved by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by using the auxiliary information, and the time-frequency resource is suggested or recommended for use by the second sidelink device. The second sidelink device can learn, based on the auxiliary information, whether a resource indicated by the auxiliary information can be used by the second device, and whether a resource conflict with another communication device is to occur. For the second sidelink device, the auxiliary information is only used to assist the second sidelink device in resource selection. For the resource reserved by the first sidelink device for the second sidelink device, the second sidelink device may choose to use or not to use the resource, or may partially use the resource.

[00164] The resource excluded by the first sidelink device for the second sidelink device means that the first sidelink device indicates a time-frequency resource to the second sidelink device by

using the auxiliary information, and the time-frequency resource is not suggested or recommended for use by the second sidelink device. In this case, the time-frequency resource may not be suggested by the first sidelink device for selection by the second sidelink device because of being occupied by another communication device or for other reasons. Therefore, a resource conflict
5 between the second sidelink device and another communication device in a resource selection process is avoided.

[00165] The first sidelink resource information may also be set in the sidelink link control information SCI. Referring to Table 1, the first sidelink resource information may be included in the first level SCI, and the first sidelink resource information may be indicated by using a field in
10 the first level SCI. For example, the auxiliary information in the first sidelink resource information is the information about the auxiliary resource. The auxiliary information indicates a time-frequency resource, and the resource is the auxiliary resource. The "RA: frequency" field in the first level SCI indicates frequency domain information of the auxiliary resource, the "RA: time" field in the first level SCI indicates time domain information of the auxiliary resource, and the
15 period field in the first level SCI indicates period information of the auxiliary information. Optionally, remaining fields may indicate the auxiliary information, or may indicate parameters used during normal transmission. No enumeration is performed herein. Therefore, the second sidelink device can learn about the auxiliary resource based on the received first indication information and first sidelink resource information, and perform resource selection with reference
20 to the information about the auxiliary resource.

[00166] In this embodiment of this application, when both the first indication information and the first sidelink resource information are included in same information, the first indication information and the first sidelink resource information can be simultaneously sent. For example, both the first indication information and the first sidelink resource information are included in the
25 first level SCI of the sidelink link control information. Alternatively, the first indication information and the first sidelink resource information may be separately sent in different signaling.

[00167] According to the communication method provided in this embodiment of this application, the first sidelink device sends the first indication information and the first sidelink resource information to the second sidelink device, and the second sidelink device can learn, based
30 on the received first indication information and first sidelink resource information, that the first sidelink resource information includes the auxiliary information that assists the second sidelink

device in resource selection, and then may perform resource selection based on the auxiliary information, to avoid a resource conflict with another communication device.

[00168] The first sidelink device performs sensing in the configured or preconfigured resource pool to select an available resource. Usually, the resource selected by the first sidelink device by using this process is used by the first sidelink device. After selecting the available resource, the first sidelink device performs information transmission on the resource. To ensure information transmission reliability, a resource reserved by the first sidelink device is used for a specific quantity of times of retransmission. Based on this, the first sidelink resource information may further include reservation information, and the reservation information indicates the resource reserved by the first sidelink device. A value of the first indication information may be a second value different from the first value, and the second value indicates that the first sidelink resource information includes the auxiliary information and the reservation information. For example, when a value of the first indication information is "01", it indicates that the first sidelink resource information is the auxiliary information. When a value of the first indication information is the second value "10", it indicates that the first sidelink resource information includes the reservation information and the auxiliary information.

[00169] In this embodiment of this application, the first sidelink resource information determined by the first sidelink device may include resource information sent in a plurality of timeslots in one time window. Resource information sent in one or some timeslots indicates the resource reserved by the first sidelink device, and resource information sent in one or some timeslots is auxiliary information, used to assist the second sidelink device in resource selection. Therefore, the second sidelink device can learn about specific resources reserved by the first sidelink device for the first sidelink device, and specific resources to which reference can be made during resource selection. The first sidelink resource information may include the reservation information sent in a first timeslot and the auxiliary information sent in a second timeslot. Herein, the first timeslot and the second timeslot do not indicate a time sequence, and are named merely for distinguishing between the reservation information and the auxiliary information.

[00170] FIG. 4 is a schematic diagram in which a first sidelink device sends first sidelink resource information according to an embodiment of this application. Referring to FIG. 4, the first sidelink device sends the first sidelink resource information based on a period T, the period T includes a first time window, and a length of the first time window is less than that of the period

T. The first time window includes a plurality of timeslots, and the first sidelink device sends the first sidelink resource information in the plurality of timeslots of the first time window. In FIG. 4, one rectangular box filled with oblique lines indicates one timeslot, and the first sidelink device sends resource information in the timeslot. The period T means that the first sidelink device sends the first sidelink resource information by using the time T as a repetition period, and first sidelink resource information sent in adjacent periods may indicate different content. It should be noted that, a periodic service may be sent by using the period T as an interval. T may be considered as a sending period of the periodic service, or may be considered as a reservation period in which the periodic service is to be sent. This is not limited in the present invention. Optionally, for an aperiodic service, the period T may be considered as a time window. A data packet may be retransmitted for a plurality of times in a current time window. However, in a next time window, another data packet may be newly transmitted and/or retransmitted.

[00171] One period includes one first time window, and the first sidelink device sends the first sidelink resource information in the plurality of timeslots of the first time window. FIG. 4 shows, as an example, a case in which the first sidelink device sends the first sidelink resource information in three timeslots.

[00172] In the example in which the first sidelink device sends the first sidelink resource information in the three timeslots in FIG. 4, the first sidelink resource information may include the reservation information sent in one first timeslot and the auxiliary information sent in two second timeslots; or the first sidelink resource information includes the reservation information sent in two first timeslots and the auxiliary information sent in one second timeslot. The length of the first time window may be greater than three timeslots. For example, the length of the first time window may be 32 timeslots. The three timeslots in which the first sidelink device sends the first sidelink resource information may not be adjacent, or may not be distributed at equal timeslot intervals.

[00173] Table 2 shows a plurality of types of the first sidelink resource information sent in the three timeslots. A timeslot 1, a timeslot 2, and a timeslot 3 indicate, in a time sequence, the three timeslots for sending the first sidelink resource information. The timeslot 1 is earlier than the timeslot 2 in terms of time, and the timeslot 2 is earlier than the timeslot 3 in terms of time. However, the timeslots 1 to 3 do not necessarily indicate the first three timeslots in the first time window. The timeslots 1 to 3 may not be adjacent, or may not be at equal timeslot intervals. The timeslot 1 may be the first timeslot in the first time window. It should be noted that, in this

embodiment of this application, six different types may be considered as six parallel optional manners of transmitting the reservation information and the auxiliary information in different timeslots, and the six types do not need to simultaneously work.

Table 2: Type of the first sidelink resource information sent in the three timeslots

Timeslot Type	Timeslot 1	Timeslot 2	Timeslot 3
Type 1	Reservation information	Auxiliary information	Auxiliary information
Type 2	Reservation information	Reservation information	Auxiliary information
Type 3	Auxiliary information	Reservation information	Reservation information
Type 4	Auxiliary information	Auxiliary information	Reservation information
Type 5	Reservation information	Auxiliary information	Reservation information
Type 6	Auxiliary information	Reservation information	Auxiliary information

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[00174] Table 2 shows a status in which the auxiliary information and the reservation information are distributed in the three timeslots when the first sidelink resource information is sent in the three timeslots in the first time window. For example, in the type 1, indication information of a transmission resource and the reservation information are sent in the timeslot 1, such as a timeslot in which the SCI is currently transmitted, so that the second sidelink device performs timely demodulation based on the information. The auxiliary information is indicated in the timeslot 2 and the timeslot 3. When data transmission in a current timeslot is correct, subsequent remaining timeslot resources that are the timeslot 2 and the timeslot 3 and that are originally reserved for retransmission of a data packet in the current timeslot may be used to additionally indicate the auxiliary information, thereby further reducing wastes of reserved resources and improving transmission efficiency. A difference between the type 2 and the type 1 is as follows: If data transmitted in the first timeslot is not correctly received, the data in the first timeslot may be further retransmitted in the following timeslot 2. When the retransmitted packet in the second timeslot is correctly received, the auxiliary information is further sent in the third timeslot. Therefore, a previously reserved resource in the timeslot 3 can also be fully utilized. However, like the type 3, when a service delay requirement of the second sidelink device is very

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urgent, the auxiliary information may be sent in advance in the first timeslot, and the reservation information is sent in subsequent timeslots, to preferentially provide auxiliary information for an emergent high-quality service, thereby improving performance of an entire system.

[00175] In an optional implementation, the first sidelink device may send the first sidelink resource information in two timeslots of the first time window. The first sidelink device sends the reservation information in a first timeslot, and sends the auxiliary information in a second timeslot. The first timeslot may be earlier than the second timeslot in terms of time. In this case, the first timeslot may be the first timeslot in the first time window. Alternatively, the first timeslot may be later than the second timeslot in terms of time. In this case, the second timeslot may be the first timeslot in the first time window.

[00176] It may be understood that the reservation information is a part of the first sidelink resource information. Therefore, the reservation information may also be in the sidelink link control information SCI. For example, in the type 1, the first sidelink resource information includes the reservation information sent in the timeslot 1 and the auxiliary information sent in the timeslot 2 and the timeslot 3. The reservation information in the timeslot 1 and the auxiliary information in the timeslot 2 and the timeslot 3 may have a same format and same content. For example, the reservation information in the timeslot 1 may be a field in the first level SCI, "RA: frequency" in the first level SCI indicates frequency domain information of a time-frequency resource, "RA: time" in the first level SCI indicates time domain information of the time-frequency resource, and "Period" in the first level SCI indicates period information of the time-frequency resource. The time-frequency resource indicated by the first level SCI sent in the timeslot 1 is the resource reserved for the first sidelink device. SCI of the same content is repeatedly sent in the timeslot 2 and the timeslot 3 in the first time window. In this case, time-frequency resources indicated by the first level SCI sent in the timeslot 2 and the timeslot 3 are auxiliary resources of the second sidelink device.

[00177] In an optional implementation, the first sidelink device may send second indication information to the second sidelink device. The second indication information indicates the reservation information sent in the first timeslot and the auxiliary information sent in the second timeslot. For example, the first sidelink resource information may include a plurality of pieces of reservation information sent in a plurality of timeslots of the first time window and a plurality of pieces of auxiliary information sent in a plurality of timeslots of the first time window, and the

second indication information may indicate specific timeslots in which the reservation information is sent and specific timeslots in which the auxiliary information is sent. The second indication information may have different values, and the reservation information sent in the first timeslot and the auxiliary information in the second timeslot may be indicated by using a value of the second indication information.

[00178] The second indication information may be sent in the first timeslot or the second timeslot. The second indication information may be sent in only one first timeslot or only one second timeslot.

[00179] FIG. 5a to FIG. 5c are other schematic diagrams in which a first sidelink device sends first sidelink resource information according to embodiments of this application. FIG. 5a to FIG. 5c are used to describe a function of the second indication information in this embodiment of this application. In FIG. 5a to FIG. 5c, a rectangular box indicates a timeslot in the first time window, and three rectangular boxes filled with oblique lines indicate that the first sidelink device sends the first sidelink resource information in these timeslots.

[00180] The first sidelink device sends the second indication information to the second sidelink device. The second indication information may have different values, indicating different content. When a value of the second indication information may be a first value, the first value indicates that the first sidelink device is to send the reservation information in an n^{th} timeslot of the first time window, send the reservation information or the auxiliary information in an $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G2)^{\text{th}}$ timeslot, where n , $G1$, and $G2$ are all integers. A relationship between n , $G1$, and $G2$ may be: $n \leq M-2$, and $1 \leq G1 < G2 \leq M-n$.

[00181] FIG. 5a shows a case in which the value of the second indication information is the first value. It is assumed that the second sidelink device receives, in a time sequence, the first sidelink resource information sent in the three timeslots. Based on the second indication information, the second sidelink device can learn that the first sidelink device is to send the reservation information in the n^{th} timeslot, and a resource indicated by the reservation information is reserved for the first sidelink device. In addition, the second sidelink device can further learn that the first sidelink device is to send the auxiliary information in the $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G2)^{\text{th}}$ timeslot. For example, $M=32$, $n=1$, $G1=6$, and $G2=9$. The value of the second indication information may be "00". In this case, the second information indicates that the first sidelink device is to send the reservation information in the first timeslot, the first sidelink

device is to send the auxiliary information in the seventh timeslot, and the first sidelink device is to send the auxiliary information in the tenth timeslot. Therefore, the second sidelink device can learn, only by receiving the information sent by the first sidelink device in the first timeslot, that information to be sent by the first sidelink device in the seventh timeslot and the tenth timeslot is the auxiliary information. Therefore, the second sidelink device can determine, based on the second indication information, whether to detect and when to detect the corresponding auxiliary information.

[00182] FIG. 5b shows a case in which a value of the second indication information is a second value. When the value of the second indication information is the second value, the second value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the reservation information in an $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G4)^{\text{th}}$ timeslot, where n , $G3$, and $G4$ are all integers. A relationship between n , $G3$, and $G4$ may be: $1 < n < M$, $G3 < n$, and $G4 \leq M - n$.

[00183] It is also assumed that the second sidelink device receives, in a time sequence, the first sidelink resource information sent in the three timeslots. Before receiving the information sent in the n^{th} timeslot, the second sidelink device has received information sent by the first sidelink device before the n^{th} timeslot. Based on the second indication information, the second sidelink device can learn that the first sidelink device sends the auxiliary information in the n^{th} timeslot. In addition, the second sidelink device can further learn that the first sidelink device is to send the reservation information in the $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G4)^{\text{th}}$ timeslot. For example, $M=32$, $n=5$, $G3=4$, and $G4=20$. The value of the second indication information may be "01". In this case, the second information indicates that the first sidelink device is to send the reservation information in the first timeslot, the first sidelink device is to send the auxiliary information in the fifth timeslot, and the first sidelink device is to send the auxiliary information in the twenty-fifth timeslot. Therefore, the second sidelink device can learn, only by receiving the information sent by the first sidelink device in the fifth timeslot, whether information sent by the first sidelink device in the fifth timeslot and the twenty-fifth timeslot is the reservation information or the auxiliary information. Further, due to impact of half-duplex, the second device may not detect the second indication information in the timeslot 1 because the second device is sending data in the timeslot 1. If indication statuses of the reservation information or the auxiliary information in the timeslot 1 and a timeslot 15 are further indicated in the timeslot $n=5$, the impact

caused by the half-duplex can be further overcome.

[00184] FIG. 5c shows a case in which a value of the second indication information is a third value. When the value of the second indication information is the third value, the third value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in an $(n-G6)^{\text{th}}$ timeslot, where n , $G5$, and $G6$ are all integers. For example, a relationship between n , $G5$, and $G6$ may be: $2 < n \leq M$, and $1 \leq G5 < G6 < n$.

[00185] It is also assumed that the second sidelink device receives, in a time sequence, the first sidelink resource information sent in the three timeslots. Before receiving the information sent in the n^{th} timeslot, the second sidelink device has received the information sent by the first sidelink device in the two timeslots before the n^{th} timeslot. Based on the second indication information, the second sidelink device can learn that the first sidelink device sends the auxiliary information in the n^{th} timeslot. In addition, the second sidelink device can further learn that the first sidelink device is to send the auxiliary information in the $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in the $(n-G6)^{\text{th}}$ timeslot. For example, $M=32$, $n=20$, $G5=14$, and $G6=19$. The value of the second indication information may be "10". In this case, the second information indicates that the first sidelink device is to send the reservation information in the first timeslot, the first sidelink device is to send the auxiliary information in the sixth timeslot, and the first sidelink device is to send the auxiliary information in the twentieth timeslot. Therefore, the second sidelink device can learn, only by receiving the information sent by the first sidelink device in the twentieth timeslot, that information sent by the first sidelink device in the first timeslot and the sixth timeslot is the auxiliary information.

[00186] In the embodiments in FIG. 5a to FIG. 5c, the second indication information may be sent in the n^{th} timeslot of the first time window. In this case, when receiving the second indication information in the n^{th} timeslot, the second sidelink device can learn whether specific information received in a current timeslot is the auxiliary information or the reservation information and whether specific information sent in other timeslots is the auxiliary information or the reservation information.

[00187] In the embodiments shown in FIG. 4 and FIG. 5a to FIG. 5c, the first sidelink resource information includes the reservation information and the auxiliary information, and the reservation information and the auxiliary information are sent by the first sidelink device in different timeslots

of the first time window. This case is indicated by using the second value of the first indication information. An embodiment of this application further provides an optional implementation. A value of the first indication information may be a third value, and the third value also indicates that the first sidelink resource information includes the reservation information and the auxiliary information. However, different from the case in which the value of the first indication information is the second value, in this case, the reservation information and the auxiliary information are not resource information sent in different timeslots. The reservation information and the auxiliary information may be resource information sent by the first sidelink device in a same timeslot. The reservation information indicates the resource reserved for the first sidelink device. The auxiliary information indicates the auxiliary resource. The auxiliary resource is the resource reserved by the first sidelink device for the second sidelink device or the resource excluded by the first sidelink device for the second sidelink device. In addition, the auxiliary resource is adjacent to the resource reserved by the first sidelink device in frequency domain. The third value may be, for example, "11", and indicates that the first sidelink resource information includes the reservation information and the auxiliary information, and the resource indicated by the reservation information is adjacent to the resource indicated by the auxiliary information in frequency domain.

[00188] The reservation information in the first sidelink resource information may be in the first level SCI, and the auxiliary information in the first sidelink resource information may be in the second level SCI. Similarly, "RA: frequency" in the first level SCI indicates frequency domain information of the resource reserved by the first sidelink device, "RA: time" in the first level SCI indicates time domain information of the resource reserved by the first sidelink device, and "Period" in the first level SCI indicates period information of the resource reserved by the first sidelink device. The first level SCI further includes another field indicating the resource reserved by the first sidelink device. Details are not described herein. The auxiliary information may be in the second level SCI. A new field may be defined in the second level SCI to indicate the auxiliary resource, or a new format of the second level SCI is added to indicate the auxiliary resource. Content of the new format of the second level SCI may include fields indicating information such as time-frequency information, period information, and a priority of the auxiliary resource. That the resource reserved by the first sidelink device is adjacent to the auxiliary resource in frequency domain may mean that a frequency domain end point of the resource reserved by the first sidelink device overlaps a frequency domain start point of the auxiliary resource, or a frequency domain

start point of the resource reserved by the first sidelink device overlaps a frequency domain end point of the auxiliary resource. Therefore, discontinuity between the auxiliary resource and the resource reserved by the first sidelink device can be avoided, to reduce resource fragments, and improve resource usage efficiency of an entire system.

- 5 **[00189]** As an optional implementation, a value of the first indication information may be a fourth value, and the fourth value indicates that the first sidelink resource information is the reservation information. In this case, a resource indicated by the first sidelink resource information is the resource reserved by the first sidelink device, and the first sidelink resource information does not include the auxiliary information. When receiving the first indication information and the first
- 10 sidelink resource information, the second sidelink device can learn that the resource indicated by the first sidelink resource information is reserved by the first sidelink device for the first sidelink device, the first sidelink device is to use the resource to perform data transmission, and the second sidelink device cannot select the resource to perform data transmission. The fourth value may be, for example, "00".
- 15 **[00190]** With reference to the foregoing embodiments shown in FIG. 3 to FIG. 5c, possible values and indicated content of the first indication information are summarized as shown in Table 3. Table 3 shows content indicated by the first indication information when values of the first indication information are different. Table 3 is merely an example, and the value of the first indication information is not limited to cases enumerated in Table 3. In Table 3, for example, a 2-
- 20 bit field is used for the first indication information.

Table 3: A 2-bit field indicates the value and the indicated content of the first indication information

Value of the first indication information	Indicated content of the first indication information
00	The first sidelink resource information is the reservation information
01	The first sidelink resource information is the auxiliary information
10	The first sidelink resource information includes the reservation information and the auxiliary information, and the reservation information and the auxiliary information are resource information

Value of the first indication information	Indicated content of the first indication information
	sent by the first sidelink device in different timeslots of the first time window
11	The first sidelink resource information includes the reservation information and the auxiliary information, and the resource indicated by the reservation information is adjacent to the resource indicated by the auxiliary information in frequency domain

[00191] When the first sidelink device may further send the second indication information to the second sidelink device, the first indication information and the second indication information may be indicated in a same field. In this case, cases including the value of the second indication information may be summarized as shown in Table 4. In Table 4, a 4-bit field indicates the first indication information and the second indication information. In Table 4, the first two code points of a field indicate the first indication information. When the first indication information indicates that the first sidelink resource information includes the reservation information sent in at least one first timeslot and the auxiliary information sent in at least one second timeslot, the last two code points of the field indicate the second indication information.

[00192] As shown in Table 4, when a value of indication information is "0000", "0001", "0010", or "0011", the first two code points "00" are a value of the first indication information, and "00" indicates that the first sidelink resource information is the reservation information. In this case, no second indication information exists. Therefore, regardless of a value of the last two code points, "0000", "0001", "0010", or "0011" indicates that the first sidelink resource information is the reservation information.

[00193] When a value of indication information is "0100", "0101", "0110", or "0111", the first two code points "01" are a value of the first indication information, and "01" indicates that the first sidelink resource information is the auxiliary information. In this case, no second indication information exists. Therefore, regardless of a value of the last two code points, "0100", "0101", "0110", or "0111" indicates that the first sidelink resource information is the auxiliary information.

[00194] When a value of indication information is "1100", "1101", "1110", or "1111", the first two code points "11" are a value of the first indication information, "11" indicates that the first

sidelink resource information includes the reservation information and the auxiliary information, and the resource indicated by the reservation information is adjacent to the resource indicated by the auxiliary information in frequency domain. In this case, the second indication information does not exist. Therefore, regardless of a value of the last two code points, "1100", "1101", "1110", or "1111" indicates same content.

[00195] A case in which a value of indication information is "1000", "1001", or "1010" is different from the foregoing cases. The first two code points "10" are a value of the first indication information, and indicate that the first sidelink resource information includes the reservation information and the auxiliary information. The last two code points are a value of the second indication information, and indicate whether resource information sent in the three timeslots is the reservation information or the auxiliary information.

[00196] Therefore, when the value of the indication information is 1000, it indicates that the first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the reservation information in the n^{th} timeslot of the first time window, send the reservation information or the auxiliary information in the $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G2)^{\text{th}}$ timeslot.

[00197] When the value of the indication information is 1001, it indicates that the first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the auxiliary information in the n^{th} timeslot of the first time window, send the reservation information in the $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G4)^{\text{th}}$ timeslot.

[00198] When the value of the indication information is 1010, it indicates that the first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the auxiliary information in the n^{th} timeslot of the first time window, send the auxiliary information in the $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in the $(n-G6)^{\text{th}}$ timeslot.

Table 4: A 4-bit field indicates the value and the indicated content of the first indication information

Value of the indication information	Indicated content
0000	The first sidelink resource information is the reservation information
0001	
0010	
0011	
0100	The first sidelink resource information is the auxiliary information
0101	
0110	
0111	
1000	The first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the reservation information in the n^{th} timeslot of the first time window, send the reservation information or the auxiliary information in the $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G2)^{\text{th}}$ timeslot
1001	The first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the auxiliary information in the n^{th} timeslot of the first time window, send the reservation information in the $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in the $(n+G4)^{\text{th}}$ timeslot
1010	The first sidelink resource information includes the reservation information and the auxiliary information, and the first sidelink device is to send the auxiliary information in the n^{th} timeslot of the first time window, send the auxiliary information in the $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in the $(n-G6)^{\text{th}}$ timeslot
1100	The first sidelink resource information includes the reservation

Value of the indication information	Indicated content
1101	information and the auxiliary information, and the resource indicated by the reservation information is adjacent to the resource indicated by the auxiliary information in frequency domain
1110	
1111	

[00199] It may be understood that, in Table 4, the values of the indication information are merely examples, and different values may indicate the indicated content in Table 4. Similarly, a field having more bits may indicate the first indication information and/or the second indication information.

[00200] In this embodiment of this application, the first indication information may have different values, to indicate different content. When the first indication information is the first value, the second value, or the third value, it indicates that the first sidelink resource information includes the auxiliary information. When the first indication information is the first value, it indicates that the first sidelink resource information is the auxiliary information. When the first indication information is the second value, it indicates that the first sidelink resource information includes the auxiliary information and the reservation information. When the first indication information is the third value, it indicates that the first sidelink resource information includes the auxiliary information and the reservation information, and the auxiliary resource indicated by the auxiliary information is adjacent to the resource that is reserved for the first sidelink device and that is indicated by the reservation information in frequency domain. After receiving the first indication information and the first sidelink resource information, the second sidelink device can learn a resource status of the resource pool or a resource occupation status of another surrounding communication device with which the second sidelink device cannot directly communicate, to avoid a resource conflict between the second sidelink device and another communication device in a resource selection process.

[00201] Different from the case in which the first indication information has different values to indicate different content, the first indication information may indicate, in another form, whether the auxiliary information exists in the first sidelink resource information. Table 5 shows some content of second level SCI according to an embodiment of this application. Table 5 is merely an example, and the second level SCI may further include other content not shown in Table 5.

Table 5: Some content of the second level SCI

Field	Bit
Source ID	8
Destination ID	16

[00202] In Table 5, the first column indicates related fields in the second level SCI, and the second column indicates a quantity of bits used for the field. The source ID field in the second row in Table 5 indicates some bits in a source ID of a layer 2, and 8 bits are available for the information. The destination ID field in the third row in Table 5 indicates some bits in a destination ID of a layer 2, and 16 bits are available for the information. For example, identifiers of the layers 2 corresponding to the source ID and the destination ID are both 24 bits, and 8 bits or 16 bits in Table 5 may be least significant bits or most significant bits of the 24 bits. Optionally, the source ID and the destination ID may be related to a V2X service.

[00203] The first indication information may include the source ID field and/or the destination ID field. When a value of the source ID field and/or a value of the destination ID field fall/falls within a first value range, the first indication information indicates that the first sidelink resource information includes indication information of a time-frequency resource for current transmission and/or indication information of the reserved resource. When a value of the source ID field and/or a value of the destination ID field fall/falls within a second value range, the first indication information indicates that the first sidelink resource information includes the auxiliary information. For example, the first indication information includes the source ID field. A value of the source ID may fall within a value range 1 to 99, a value range 1 to X of the source ID field indicates ID information of a source ID of a layer 2 related to a V2X service, and a value range X+1 to 99 of the source ID field indicates that the first sidelink resource information includes the auxiliary information. The second sidelink device can learn, based on the received first indication information, that the first sidelink resource information includes the auxiliary information.

[00204] The first sidelink resource information may be in the first level SCI, and the auxiliary information may be a field in the first level SCI and indicates the auxiliary resource. "RA: frequency" in the first level SCI may indicate frequency domain information of the auxiliary resource, "RA: time" in the first level SCI may indicate time domain information of the auxiliary resource, "Period" in the first level SCI may indicate period information of the auxiliary resource,

and the first level SCI may further have another parameter for indicating other information of the auxiliary resource.

[00205] The first level SCI and the second level SCI are sent in stages in a same timeslot of the first time window. For example, the first level SCI and the second level SCI are sent in stages in the n^{th} timeslot of the first time window. The first level SCI carries the first sidelink resource information, the second level SCI carries the first indication information, and a value of the source ID field in the second level SCI falls within $X+1$ to 99 . In this case, the first indication information indicates that resource information sent by the first sidelink device in the n^{th} timeslot is the auxiliary information. In the same first time window, the first level SCI and the second level SCI are sent in stages in an $(n+G7)^{\text{th}}$ timeslot. The first level SCI carries the first sidelink resource information, the second level SCI carries the first indication information, and a value of the source ID field in the second level SCI falls within 1 to X . In this case, the first indication information indicates that resource information sent by the first sidelink device in the $(n+G7)^{\text{th}}$ timeslot is the reservation information.

[00206] According to the communication method provided in this embodiment of this application, the first sidelink device sends the first indication information and the first sidelink resource information to the second sidelink device, and the second sidelink device can learn, based on the received first indication information and first sidelink resource information, that the first sidelink resource information includes the auxiliary information that assists the second sidelink device in resource selection, and then may perform resource selection based on the auxiliary information, to avoid a resource conflict with another communication device.

[00207] In this embodiment of this application, the auxiliary information may be the information indicating the auxiliary resource, and the auxiliary resource includes the resource reserved by the first sidelink device for the second sidelink device and/or the resource excluded by the first sidelink device for the second sidelink device. During determining of the auxiliary resource, specific available resources and specific unavailable resources need to be identified based on a measurement result of the resource pool. An availability or inavailability criterion of a resource is usually comparison with a preset signal quality threshold. When detected signal quality is higher than the preset threshold, it indicates that relatively severe interference is caused for the resource or the resource is unavailable. On the contrary, when detected signal quality is lower than the preset threshold, it indicates that the resource is relatively "clean" or available. Optionally, the

signal quality threshold herein may be related to a service priority of to-be-transmitted data. For example, a service having a higher priority requires more available resources, and usually indicates a higher preset threshold, so that fewer resources can be excluded, to select more available resources. For another example, a service having a lower priority requires less available resources, and usually indicates a lower preset threshold, so that more resources can be excluded and fewer available resources can be potentially selected, to reduce impact on transmission of a high-priority service. Therefore, during determining of the auxiliary resource, it is necessary to learn about information about a priority of a related service, to select a proper resource. In a process of determining the auxiliary information, the first sidelink device determines the auxiliary information based on a first priority. The first priority may be the same as a service priority of the first sidelink device, or the first priority may be the same as a service priority of the second sidelink device.

[00208] The service priority of the first sidelink device is a priority of a service to be transmitted by the first sidelink device on a selected resource, or a priority indicated by the first sidelink device in sidelink link control information SCI. The service priority of the second sidelink device is a priority of a service to be transmitted by the second sidelink device, or a priority indicated by the second sidelink device in sidelink link control information SCI.

[00209] The first sidelink device determines, based on the first priority, whether a current resource is reserved for the first sidelink device or reserved for the second sidelink device, or is reserved for the first sidelink device in the first timeslot or reserved for the second sidelink device in the second timeslot.

[00210] The first sidelink device may determine, based on first information, whether the first priority is the same as the service priority of the first sidelink device or the service priority of the second sidelink device. The first information may be indication signaling on the resource pool. A plurality of signaling parameter sets are configured on the resource pool, and the indication signaling herein may be one of these signaling parameter sets. The configuration information set indicating the resource pool may be an RRC message, or may be a system message. This is not limited in the present invention. Different values of the signaling can indicate whether the first priority is the same as the service priority of the first sidelink device or the service priority of the second sidelink device.

[00211] Alternatively, the first sidelink device may determine, based on second information,

whether the first priority is the same as the service priority of the first sidelink device or the service priority of the second sidelink device. The second information may include a measurement result of the first sidelink device for channel quality. A CBR measurement result is used as an example. When a CBR measured by the terminal device on the resource pool is greater than or equal to a first threshold, the first priority is the same as the service priority of the first sidelink device; or when a CBR measured by the terminal device on the resource pool is less than or equal to the first threshold, the first priority is the same as the service priority of the second sidelink device. This occurs for the following reason: A larger CBR indicates that a channel is more crowded and fewer resources can be selected. In this case, the service priority of the first device is used, so that resource selection conflicts can be reduced, and the reserved resource and the resource of the auxiliary information can be selected by using only one unified priority. Similarly, a smaller CBR indicates that a channel is idler and more resources can be selected. In this case, the service priority of the second device is used, so that a required resource in the auxiliary information can be selected in an optimal manner, to improve pertinence of the auxiliary information, thereby improving performance of the entire system.

[00212] In an optional implementation, when the channel quality is less than or equal to a first threshold, the first priority is the same as a higher priority in the service priority of the first sidelink device and the service priority of the second sidelink device; or when the channel quality is greater than or equal to the first threshold, the first priority is the same as a lower priority in the service priority of the first sidelink device and the service priority of the second sidelink device. When the channel quality is equal to the first threshold, the first priority may be the same as the higher priority in the service priority of the first sidelink device and the service priority of the second sidelink device, or the first priority may be the same as the lower priority in the service priority of the first sidelink device and the service priority of the second sidelink device. The first threshold may be configured or preconfigured by a network device. When a channel is relatively idle, a relatively large quantity of resources in the system are optional, and the auxiliary resource may be determined by using the higher priority as the first priority, to select as many resources as possible for the auxiliary information, thereby improving efficiency and quality of the auxiliary information. On the contrary, when a channel is relatively crowded, a relatively small quantity of resources in the system are optional, and the auxiliary resource may be determined by using the lower priority as the first priority, to reduce impact on another higher priority service when a resource is selected

for determining the auxiliary information.

[00213] The foregoing describes the communication method in the embodiments of this application, and the following describes communication apparatuses in the embodiments of this application. For example, the apparatus may use the method related to the solutions shown in FIG.

5 2 to FIG. 5c. The apparatus is based on a same technical concept. Because a problem resolving principle of the method is similar to that of the apparatus, reference can be made between implementations of the apparatus and the method, and repeated parts are not described again.

[00214] An embodiment of this application further provides a sidelink device. The sidelink device may be configured to perform the actions performed by the first sidelink device in the
10 method shown in FIG. 2 to FIG. 5c.

[00215] The sidelink device includes: a processing module, configured to determine first indication information and first sidelink resource information; and

a transceiver module, configured to send the first indication information and the first sidelink resource information to a second sidelink device.

15 **[00216]** The first indication information indicates that the first sidelink resource information includes auxiliary information.

[00217] The auxiliary information is used to assist the second sidelink device in resource selection.

[00218] In this embodiment of this application, the sidelink device may be the first sidelink
20 device in the method embodiments, and the first sidelink device may send the first indication information and the first sidelink resource information to the second sidelink device. The first indication information indicates that the first sidelink resource information includes the auxiliary information. After receiving the first indication information and the auxiliary information, the second sidelink device can learn about a related resource status, such as channel measurement
25 information of a resource pool, and a resource occupation status of another communication device with which the second sidelink device cannot directly communicate. The second sidelink device may perform resource selection based on the auxiliary information, to obtain, through resource selection, an available resource that can be used to send information, to avoid a resource conflict with another communication device.

30 **[00219]** An embodiment of this application further provides a sidelink device. The sidelink device may be configured to perform the actions performed by the second sidelink device in the

method shown in FIG. 2 to FIG. 5c.

[00220] The sidelink device includes: a transceiver module, configured to receive first indication information and first sidelink resource information that are sent by a first sidelink device, where

5 the first indication information indicates that the first sidelink resource information includes auxiliary information; and

 the auxiliary information is used to assist the second sidelink device in resource selection; and

 a processing module, configured to select a resource based on the first indication
10 information and the auxiliary information.

[00221] The sidelink device provided in the embodiments may be further configured to perform the method in any possible implementation of the foregoing method embodiments in FIG. 3 to FIG. 5c. For specific content, refer to some content that is in the method in FIG. 3 to FIG. 5c and that is about the actions performed by the first sidelink device and the second sidelink device.

15 Details are not described herein again.

[00222] The sidelink device in the embodiments of this application may be a terminal device. FIG. 6 is a schematic diagram of a simplified structure of a terminal device according to an embodiment of this application. The terminal device shown in FIG. 6 includes a processor, a memory, a radio frequency circuit, an antenna, and an input/output apparatus. The processor is
20 mainly configured to: process a communication protocol and communication data, control the terminal device, execute a software program, process data of the software program, and the like. The memory is mainly configured to store a software program and data. The radio frequency circuit is mainly configured to perform conversion between a baseband signal and a radio frequency signal and process the radio frequency signal. The antenna is mainly configured to
25 receive and send radio frequency signals in a form of an electromagnetic wave. The input/output apparatus, for example, a touchscreen, a display screen, or a keyboard, is mainly configured to receive data entered by a user and output data to the user. It should be noted that some types of terminal devices may have no input/output apparatus.

[00223] When data needs to be sent, the processor performs baseband processing on the to-be-sent data, and then outputs a baseband signal to the radio frequency circuit. The radio frequency
30 circuit performs radio frequency processing on the baseband signal and then sends a radio

frequency signal to the outside in a form of an electromagnetic wave through the antenna. When data is sent to the terminal device, the radio frequency circuit receives a radio frequency signal through the antenna, converts the radio frequency signal into a baseband signal, and outputs the baseband signal to the processor, and the processor converts the baseband signal into data and processes the data. For ease of description, only one memory and one processor are shown in FIG. 6. An actual terminal device product may include one or more processors and one or more memories. The memory may also be referred to as a storage medium, a storage device, or the like. The memory may be disposed independent of the processor, or may be integrated with the processor. This is not limited in this embodiment of this application.

[00224] In this embodiment of this application, the antenna and the radio frequency circuit that have sending and receiving functions may be considered as a transceiver module of the terminal device, and the processor that has a processing function may be considered as a processing module of the terminal device. As shown in FIG. 6, the terminal device includes a transceiver module 101 and a processing module 102. The transceiver module may also be referred to as a transceiver, a transceiver apparatus, or the like. The processing module may also be referred to as a processor, a processing board, a processing apparatus, or the like. Optionally, a component configured to implement a receiving function in the transceiver module 101 may be considered as a receiving module, and a component configured to implement a sending function in the transceiver module 101 may be considered as a sending module, that is, the transceiver module 101 includes the receiving module and the sending module. The transceiver module sometimes may also be referred to as a transceiver, a transceiver circuit, or the like. The receiving module sometimes may also be referred to as a receiver, a receiver circuit, or the like. The sending module sometimes may also be referred to as a transmitter, a transmitter circuit, or the like.

[00225] It should be understood that the transceiver module 101 is configured to perform the sending operation and the receiving operation of the sidelink device in the foregoing method embodiments, and the processing module 102 is configured to perform operations of the sidelink device other than the sending operation and the receiving operation in the foregoing method embodiments.

[00226] For example, in an implementation, the transceiver module 101 is configured to perform the sending operation of the first sidelink device in S302 in FIG. 3, and/or the transceiver module 101 is further configured to perform another sending/receiving step of the terminal device

in the embodiments of this application.

[00227] When the sidelink device is a chip-type apparatus or circuit, the chip apparatus may include a transceiver module and a processing module. The transceiver module may be an input/output circuit and/or a communication interface. The processing module is a processor, a microprocessor, or an integrated circuit integrated onto the chip.

[00228] When the sidelink device in the embodiments is a terminal device, refer to a device shown in FIG. 7. In FIG. 7, the device includes a processor 111, a data sending processor 112, and a data receiving processor 113. The processing module in the foregoing embodiment may be the processor 111 in FIG. 7, and performs a corresponding function. The transceiver module in the foregoing embodiment may be the data sending processor 112 and/or the data receiving processor 113 in FIG. 7. Although FIG. 7 shows a channel encoder and a channel decoder, it may be understood that these modules do not constitute a limitation description of this embodiment, but are merely an example.

[00229] FIG. 8 shows another form of this embodiment. A processing apparatus 120 includes modules such as a modulation subsystem, a central processing subsystem, and a peripheral subsystem. The sidelink device in the embodiments may be used as the modulation subsystem. Specifically, the modulation subsystem may include a processor 123 and an interface 124. The processor 123 completes a function of the foregoing processing module, and the interface 124 completes a function of the foregoing transceiver module. As another variant, the modulation subsystem includes a memory 126, a processor 123, and a program that is stored in the memory 126 and that can run on the processor. When executing the program, the processor 123 implements the method on a terminal device side in the foregoing method embodiments. It should be noted that the memory 126 may be nonvolatile or may be volatile, and may be located in the modulation subsystem or may be located in the processing apparatus 120, provided that the memory 126 can be connected to the processor 123.

[00230] Alternatively, the sidelink device in the embodiments of this application may be a network device. The network device may be shown in FIG. 9. An apparatus 130 includes one or more radio frequency units, such as a remote radio unit (Remote Radio Unit, RRU) 1310 and one or more baseband units (Baseband Unit, BBU) 1320, which may also be referred to as digital units (Digital Unit, DU). The RRU 1310 may be referred to as a transceiver module. Optionally, the transceiver module may also be referred to as a transceiver, a transceiver circuit, or the like, and

may include at least one antenna 1311 and a radio frequency unit 1312. The RRU 1310 part is mainly configured to send/receive a radio frequency signal and perform conversion between a radio frequency signal and a baseband signal, for example, is configured to send indication information to a terminal device. The BBU 1310 part is mainly configured to perform baseband processing, control the base station, and the like. The RRU 1310 and the BBU 1320 may be physically disposed together, or may be physically disposed separately, that is, a distributed base station.

[00231] The BBU 1320 is a control center of the base station. The BBU 1320 may also be referred to as a processing module, may correspond to the processing module 820 in FIG. 8, and is mainly configured to implement a baseband processing function, such as channel coding, multiplexing, modulation, or spread spectrum. For example, the BBU (processing module) may be configured to control the base station to perform the operation procedure related to the network device in the foregoing method embodiments, for example, generate the foregoing indication information.

[00232] In an example, the BBU 1320 may include one or more boards. A plurality of boards may jointly support a radio access network of a single access standard, or may separately support radio access networks of different access standards (for example, an LTE network, a 5G network, and another network). The BBU 1320 further includes a memory 1321 and a processor 1322. The memory 1321 is configured to store necessary instructions and data. The processor 1322 is configured to control the base station to perform a necessary action, for example, is configured to control the base station to perform the operation procedure related to the network device in the foregoing method embodiments. The memory 1321 and the processor 1322 may serve one or more boards. In other words, a memory and a processor may be deployed on each board. Alternatively, a plurality of boards may share a same memory and a same processor. In addition, a necessary circuit may be further disposed on each board.

[00233] The foregoing descriptions are merely specific implementations of this application, but are not intended to limit the protection scope of this application. Any variation or replacement readily figured out by a person skilled in the art within the technical scope disclosed in this application shall fall within the protection scope of this application. Therefore, the protection scope of this application shall be subject to the protection scope of the claims.

CLAIMS

What is claimed is:

1. A communication method, comprising:
 - determining, by a first sidelink device, first indication information and first sidelink resource
 - 5 information, wherein the first indication information indicates that the first sidelink resource information comprises auxiliary information; and
 - sending, by the first sidelink device, the first indication information and the first sidelink resource information to a second sidelink device, wherein
 - the auxiliary information is used to assist the second sidelink device in resource selection.
- 10 2. The method according to claim 1, wherein
 - a value of the first indication information is a first value, and the first value indicates that the first sidelink resource information is the auxiliary information.
3. The method according to claim 1 or 2, wherein
 - the first sidelink resource information further comprises reservation information, and the
 - 15 reservation information indicates a resource reserved by the first sidelink device.
4. The method according to claim 3, wherein
 - the value of the first indication information is a second value, and the second value indicates that the first sidelink resource information comprises the auxiliary information and the reservation information.
- 20 5. The method according to claim 3 or 4, wherein
 - the sending, by the first sidelink device, the first indication information and the first sidelink resource information to a second sidelink device comprises: sending, by the first sidelink device, the first sidelink resource information in a first time window; and
 - the first time window comprises a plurality of timeslots, and the first sidelink resource
 - 25 information comprises the reservation information sent in a first timeslot and the auxiliary information sent in a second timeslot.
6. The method according to claim 5, wherein
 - the first sidelink resource information comprises the reservation information sent in one first timeslot and the auxiliary information sent in one or more second timeslots; or
 - 30 the first sidelink resource information comprises the reservation information sent in a

plurality of first timeslots and the auxiliary information sent in one second timeslot.

7. The method according to claim 5 or 6, wherein

the first sidelink device sends second indication information to the second sidelink device, wherein the second indication information indicates the reservation information sent in the first timeslot and the auxiliary information sent in the second timeslot.

8. The method according to claim 7, wherein

the first time window comprises M timeslots, and M is an integer greater than or equal to 3; and

a value of the second indication information is a first value, and the first value indicates that the first sidelink device is to send the reservation information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G2)^{\text{th}}$ timeslot, where n, G1, and G2 are all integers; or

a value of the second indication information is a second value, and the second value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the reservation information in an $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G4)^{\text{th}}$ timeslot, where n, G3, and G4 are all integers; or

a value of the second indication information is a third value, and the third value indicates that the first sidelink device is to send the auxiliary information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n-G5)^{\text{th}}$ timeslot, and send the reservation information in an $(n-G6)^{\text{th}}$ timeslot, where n, G5, and G6 are all integers.

9. The method according to any one of claims 1 to 8, wherein

the auxiliary information comprises a result of measuring a resource in a resource pool by the first sidelink device.

10. The method according to any one of claims 1 to 9, wherein

the first indication information and/or the first sidelink resource information is in sidelink control information SCI.

11. The method according to claim 10, wherein

the sidelink control information SCI comprises first-stage SCI and/or second-stage SCI; and the first-stage SCI comprises the first indication information and/or the first sidelink resource information.

12. The method according to claim 11, wherein

the first indication information comprises a reserved bit or a reserved field in the first-stage SCI;

the first indication information comprises an unused code point in an MCS field in the first-stage SCI; or

5 the first indication information comprises an unused code point in a period field in the first-stage SCI.

13. The method according to claim 1, wherein

10 a value of the first indication information is within a first value range, and the first indication information indicates that the first sidelink resource information comprises the auxiliary information.

14. The method according to claim 13, wherein

the first indication information is a field, and the field comprises a source ID and/or a destination ID in second-stage SCI.

15. The method according to any one of claims 1 to 14, wherein

15 the auxiliary information is information about an auxiliary resource, and the auxiliary resource comprises at least one of the following resources:

a resource reserved by the first sidelink device for the second sidelink device, and a resource excluded by the first sidelink device for the second sidelink device.

16. The method according to claim 15, wherein

20 the value of the first indication information is a third value, and the third value indicates that the first sidelink resource information comprises the reservation information and the auxiliary information; and

the auxiliary resource is adjacent to a resource reserved by the first sidelink device in frequency domain.

25 17. The method according to claim 16, wherein

the sidelink control information SCI comprises the first-stage SCI and the second-stage SCI, the first-stage SCI comprises the reservation information, and the second-stage SCI comprises the auxiliary information.

18. The method according to any one of claims 1 to 17, wherein

30 the determining, by the first sidelink device, the first sidelink resource information comprises: determining, by the first sidelink device, the auxiliary information based on a first priority; and

the first priority is the same as a service priority of the first sidelink device or a service priority of the second sidelink device.

19. The method according to claim 18, further comprising:

5 determining the first priority based on first information, wherein the first information comprises indication signaling in the resource pool.

20. The method according to claim 18, wherein

determining the first priority based on second information, wherein the second information comprises a result of measuring channel quality performed by the first sidelink device, wherein

10 the channel quality is less than or equal to a first threshold, and the first priority is the same as a higher priority in the service priority of the first sidelink device and the service priority of the second sidelink device; or

the channel quality is greater than or equal to a first threshold, and the first priority is the same as a lower priority in the service priority of the first sidelink device and the service priority of the second sidelink device.

21. A sidelink device, comprising:

a processing module, configured to determine first indication information and first sidelink resource information, wherein the first indication information indicates that the first sidelink resource information comprises auxiliary information; and

20 a transceiver module, configured to send the first indication information and the first sidelink resource information to a second sidelink device, wherein

the auxiliary information is used to assist the second sidelink device in resource selection.

22. The sidelink device according to claim 21, wherein

25 a value of the first indication information is a first value, and the first value indicates that the first sidelink resource information is the auxiliary information.

23. The sidelink device according to claim 21 or 22, wherein

the first sidelink resource information further comprises reservation information, and the reservation information indicates a resource reserved by the first sidelink device.

24. The sidelink device according to claim 23, wherein

30 the value of the first indication information is a second value, and the second value indicates that the first sidelink resource information comprises the auxiliary information and the reservation

information.

25. The sidelink device according to claim 23 or 24, wherein

that the transceiver module is configured to send the first indication information and the first sidelink resource information to the second sidelink device comprises: sending, by the transceiver
5 module, the first sidelink resource information in a first time window; and

the first time window comprises a plurality of timeslots, and the first sidelink resource information comprises the reservation information sent in a first timeslot and the auxiliary information sent in a second timeslot.

26. The sidelink device according to claim 25, wherein

10 the first sidelink resource information comprises the reservation information sent in one first timeslot and the auxiliary information sent in one or more second timeslots; or

the first sidelink resource information comprises the reservation information sent in a plurality of first timeslots and the auxiliary information sent in one second timeslot.

27. The sidelink device according to claim 25 or 26, wherein

15 the transceiver module sends second indication information to the second sidelink device, wherein the second indication information indicates the reservation information sent in the first timeslot and the auxiliary information sent in the second timeslot.

28. The sidelink device according to claim 27, wherein

20 the first time window comprises M timeslots, and M is an integer greater than or equal to 3; and

a value of the second indication information is a first value, and the first value indicates that the transceiver module is to send the reservation information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n+G1)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G2)^{\text{th}}$ timeslot, where n, G1, and G2 are all integers; or

25 a value of the second indication information is a second value, and the second value indicates that the transceiver module is to send the auxiliary information in an n^{th} timeslot of the first time window, send the reservation information in an $(n-G3)^{\text{th}}$ timeslot, and send the auxiliary information in an $(n+G4)^{\text{th}}$ timeslot, where n, G3, and G4 are all integers; or

30 a value of the second indication information is a third value, and the third value indicates that the transceiver module is to send the auxiliary information in an n^{th} timeslot of the first time window, send the auxiliary information in an $(n-G5)^{\text{th}}$ timeslot, and send the reservation

information in an $(n-G6)^{\text{th}}$ timeslot, where n , $G5$, and $G6$ are all integers.

29. The sidelink device according to any one of claims 21 to 28, wherein

the auxiliary information comprises a result of measuring a resource in a resource pool by the sidelink device.

5 30. The sidelink device according to any one of claims 21 to 29, wherein

the first indication information and/or the first sidelink resource information is in sidelink control information SCI.

31. The sidelink device according to claim 30, wherein

the sidelink control information SCI comprises first-stage SCI and/or second-stage SCI; and

10 the first-stage SCI comprises the first indication information and/or the first sidelink resource information.

32. The sidelink device according to claim 31, wherein

the first indication information comprises a reserved bit or a reserved field in the first-stage SCI;

15 the first indication information comprises an unused code point in an MCS field in the first-stage SCI; or

the first indication information comprises an unused code point in a period field in the first-stage SCI.

33. The sidelink device according to claim 21, wherein

20 a value of the first indication information is within a first value range, and the first indication information indicates that the first sidelink resource information comprises the auxiliary information.

34. The sidelink device according to claim 33, wherein

25 the first indication information is a field, and the field comprises a source ID and/or a destination ID in second-stage SCI.

35. The sidelink device according to any one of claims 21 to 34, wherein

the auxiliary information is information about an auxiliary resource, and the auxiliary resource comprises at least one of the following resources:

30 a resource reserved by the sidelink device for the second sidelink device, and a resource excluded by the sidelink device for the second sidelink device.

36. The sidelink device according to claim 35, wherein

the value of the first indication information is a third value, and the third value indicates that the first sidelink resource information comprises the reservation information and the auxiliary information; and

5 the auxiliary resource is adjacent to a resource reserved by the sidelink device in frequency domain.

37. The sidelink device according to claim 36, wherein
the sidelink control information SCI comprises the first-stage SCI and the second-stage SCI, the first-stage SCI comprises the reservation information, and the second-stage SCI comprises the auxiliary information.

10 38. The sidelink device according to any one of claims 21 to 37, wherein
that the processing module is configured to determine the first sidelink resource information comprises: determining, by the processing module, the auxiliary information based on a first priority; and

15 the first priority is the same as a service priority of the sidelink device or a service priority of the second sidelink device.

39. The sidelink device according to claim 38, further comprising:
the processing module is configured to determine the first priority based on first information, wherein the first information comprises indication signaling in the resource pool.

20 40. The sidelink device according to claim 38, wherein
the processing module is configured to determine the first priority based on second information, wherein the second information comprises a result of measuring channel quality by the sidelink device; and

25 the channel quality is less than or equal to a first threshold, and the first priority is the same as a higher priority in the service priority of the sidelink device and the service priority of the second sidelink device; or

the channel quality is greater than or equal to a first threshold, and the first priority is the same as a lower priority in the service priority of the sidelink device and the service priority of the second sidelink device.

30 41. A sidelink device, comprising:
a transceiver module, configured to receive first indication information and first sidelink resource information sent by a first sidelink device, wherein

the first indication information indicates that the first sidelink resource information comprises auxiliary information; and

the auxiliary information is used to assist the sidelink device in resource selection; and

a processing module, configured to select a resource based on the first indication information

5 and the auxiliary information.

42. A communication apparatus, comprising:

a transceiver and a processor, wherein the transceiver is configured to execute instructions for receiving and sending information; and when the instructions are run by the processor, the communication apparatus is enabled to perform the method according to any one of claims 1 to

10 20.

43. A computer-readable storage medium, wherein

the computer-readable storage medium stores a computer program, and the program is executed by a processor to perform the method according to any one of claims 1 to 20.

44. A communication apparatus, comprising a memory and a processor, wherein the memory

15 is configured to store instructions, and the processor is configured to: execute the instructions stored in the memory to perform the method according to any one of claims 1 to 20.

45. A communication system, comprising the sidelink device according to any one of claims 21 to 40 and the sidelink device according to claim 41.

46. A computer program, wherein when the computer program is run on a computer, the

20 computer is enabled to perform the communication method according to any one of claims 1 to 20.