

CLAIMS

What is claimed is:

CLAIMS

1. A method for wireless communication at a first user equipment (UE), comprising:
 - receiving, ~~from a second UE,~~ sidelink groupcast information of a first sidelink group, the sidelink groupcast information including; a group size of the first sidelink group, and a member identification of the first UE within the first sidelink group, wherein the first sidelink group includes ~~a plurality of members including~~ at least the first UE and ~~the~~ a second UE;
 - determining, at the first UE, an identification for communication with the first sidelink group ~~based at least in part on the sidelink groupcast information; and;~~
 - determining a feedback resource configuration corresponding to common feedback resources associated with the first sidelink group based at least in part on the group size of the first sidelink group exceeding a threshold; and
 - communicating with the first sidelink group based at least in part on the ~~determined~~ identification for communication.
2. The method of claim 1, ~~further comprising:~~
 - ~~determining, based at least in part on the group size of the first sidelink group, whether each of the plurality of members of the first sidelink group uses separate feedback resources for providing acknowledgment feedback information to other of the plurality of members of the first sidelink group.~~
3. ~~The method of claim 2, wherein the first UE determines whether separate that the feedback resources or common feedback resources are used for providing the acknowledgement feedback information based at least in part on whether a number of the plurality of members of the first sidelink group is above a threshold number of members.~~
4. ~~The method of claim 2, wherein the first UE determines whether separate feedback resources or resource configuration corresponds to the common feedback resources are used for providing the acknowledgement feedback information based at least in~~

part on a ~~pre~~-configuration of the first UE, control signaling received from another UE or a ~~base station~~network device, or any combination thereof.

~~53.~~ The method of claim ~~21~~, wherein the first UE determines ~~whether separate that the feedback resources or resource configuration corresponds to the~~ common feedback resources ~~are used for providing the acknowledgement-feedback information~~ based at least in part on radio resources control (RRC) signaling received at the first UE, a system information block (SIB) received at the first UE, a medium access control (MAC) control element received at the first UE, or any combination thereof.

~~64.~~ The method of claim 1, wherein the ~~identification is a source layer-2 identification, and the member identification of the first UE is included as a first subset of bits of the~~ source layer-~~2~~ identification.

~~75.~~ The method of claim ~~61~~, wherein the sidelink groupcast information further includes a group identifier of ~~at the~~ first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

~~86.~~ The method of claim ~~75~~, wherein the group identifier is mapped into a ~~second~~ subset of bits of ~~at the~~ destination layer-~~2~~ identification.

~~97.~~ The method of claim ~~64~~, further comprising:
determining a layer-~~1~~ identification based at least in part on the source layer-~~2~~ identification, wherein the layer-~~1~~ identification is indicated in a physical layer control information transmission to the first sidelink group.

~~108.~~ The method of claim ~~97~~, wherein the layer-~~1~~ identification corresponds to a subset of the source layer-~~2~~ identification that indicates the member identification of the first UE within the first sidelink group.

~~119.~~ The method of claim ~~64~~, wherein a ~~number~~quantity of bits of the ~~first~~ subset of bits is determined based at least in part on the group size of the first sidelink group.

~~1210.~~ The method of claim 1, further comprising:
determining, based at least in part on the group size of the first sidelink group and the member identification of the first UE within the first sidelink group, a set of feedback

resources for transmitting ~~acknowledgment-feedback information~~ to one or more members of the first sidelink group.

~~1311.~~ The method of claim ~~1210~~, further comprising:
 receiving a first groupcast communication from the second UE;
 determining ~~acknowledgment-feedback~~ for the first groupcast communication;
 and
 transmitting the ~~acknowledgment~~ feedback for the first groupcast communication to the second UE using the set of feedback resources.

~~1412.~~ The method of claim 1, further comprising:
 transmitting a groupcast communication to other ~~of the plurality of~~ members of the first sidelink group;
 monitoring for ~~acknowledgment-feedback~~ from the other ~~of the plurality of~~ members of the first sidelink group; and
 determining to retransmit the groupcast communication based at least in part on the ~~acknowledgment-feedback~~ from at least one of the ~~plurality of other~~ members of the first sidelink group.

~~1513.~~ The method of claim ~~1412~~, wherein ~~the~~ determining to retransmit further comprises:
 determining that at least one of the ~~plurality of other~~ members of the first sidelink group provides a negative acknowledgment via the feedback, determining that ~~an acknowledgment~~ the feedback from at least one of the ~~plurality of other~~ members of the first sidelink group is not received at the first UE, or any combination thereof.

~~1614.~~ The method of claim 1, further comprising:
 configuring an access stratum layer at the first UE for a quality of service (QoS) flow for a groupcast communications associated with a layer-2 identification, ~~and wherein the access stratum layer determines a QoS flow identification and a QoS context and derives a layer-1 identification for the QoS flow.~~

~~1715.~~ The method of claim 1, wherein the sidelink groupcast information is received at an application layer of the first UE ~~or at a group management mid-ware layer at the first UE.~~

~~18~~16. A method for wireless communication at a first user equipment (UE), comprising:

configuring a first sidelink group for sidelink groupcast communication, wherein the first sidelink group includes ~~a plurality of members including~~ at least the first UE and a second UE;

determining a member identification of the first UE;

determining, based at least in part on ~~a group size of the first sidelink group and the determined~~the member identification of the first UE, a feedback resource configuration ~~for the sidelink group~~corresponding to common feedback resources associated with the first sidelink group based at least in part on a group size of the first sidelink group exceeding a threshold;

transmitting, to ~~others of the plurality of~~other members of the first sidelink group, sidelink groupcast information that indicates at least the feedback resource configuration;

determining, at the first UE, an identification for communication with the first sidelink group ~~based at least in part on the sidelink groupcast information~~; and

communicating with the first sidelink group based at least in part on the ~~determined~~identification for communication and the feedback resource configuration.

~~19~~17. The method of claim ~~18~~, wherein:

~~the feedback resource configuration includes a common feedback resource used by the plurality of members or separate feedback resources corresponding to each of the plurality of members.~~

~~20.~~—The method of claim ~~19~~, wherein:

~~the separate feedback resources are used for providing acknowledgement feedback information when a number of the plurality of members of the first sidelink group is at or below a threshold number of members; and~~

~~the common resources are used for providing acknowledgement feedback information when the number of the plurality of members of the first sidelink group exceeds the threshold number of members.~~

21. ~~The method of claim 20~~16, further comprising:

transmitting a groupcast communication to ~~the other of the plurality of~~
members of the first sidelink group;

monitoring, based at least in part on the feedback resource configuration, for
~~acknowledgment~~ feedback from the ~~other of the plurality of~~ members of the first sidelink
group; and

determining to retransmit the groupcast communication based at least in part
on ~~acknowledgment~~ feedback from at least one of the ~~plurality of other~~ members of the first
sidelink group.

2218. The method of claim ~~21~~17, wherein ~~the~~ determining to retransmit
further comprises:

determining that at least one of the ~~plurality of other~~ members of the first
sidelink group provides a negative acknowledgment via the feedback, determining that ~~an~~
~~acknowledgment~~ feedback from at least one of the ~~plurality of other~~ members of the first
sidelink group is not received at the first UE, or any combination thereof.

2319. The method of claim ~~18~~16, wherein the first UE determines
~~whether that the separate feedback resources or resource configuration corresponds to the~~
common feedback resources ~~are used for providing the acknowledgement feedback~~
~~information~~ based at least in part on a ~~pre~~-configuration of the first UE, control signaling
received from another UE or a ~~base station~~network device, or any combination thereof.

2420. The method of claim ~~18~~16, wherein the first UE determines ~~whether~~
~~separate that the feedback resources or resource configuration corresponds to the~~ common
feedback resources ~~are used for providing the acknowledgement feedback information~~ based
at least in part on radio resources control (RRC) signaling received at the first UE, a system
information block (SIB) received at the first UE, a medium access control (MAC) control
element received at the first UE, or any combination thereof.

25. ~~The method of claim 18, wherein a number of the separate feedback~~
~~resources corresponds to a number of the plurality of members of the first sidelink group~~
~~minus one.~~

~~26. The method of claim 18~~21. The method of claim 16, wherein the sidelink groupcast information further indicates a group identifier of the first sidelink group, ~~at the~~ group size of the first sidelink group, and a corresponding member identification within the first sidelink group of each of the ~~plurality of other~~ members.

~~27~~22. An apparatus for wireless communication at a first user equipment (UE), comprising:

~~means for receiving, from a second, at least one processor; and~~
at least one memory coupled to the at least one processor, the at least one processor configured to cause the first UE, to:

receive sidelink groupcast information of a first sidelink group, the sidelink groupcast information including, a group size of the first sidelink group, and a member identification of the first UE within the first sidelink group, wherein the first sidelink group includes a ~~plurality of members including~~ at least the first UE and ~~the~~ second UE;

~~means for determining~~determine, at the first UE, an identification for communication with the first sidelink group;

determine a feedback resource configuration corresponding to common feedback resources associated with the first sidelink group based at least in part on the group size of the first sidelink group exceeding a threshold; and ~~communication~~

communicate with the first sidelink group based at least in part on the ~~determined~~ identification; ~~and for communication.~~

~~means for communicating with the first sidelink group based at least in part on the determined identification.~~

~~28. The apparatus of claim 27, further comprising:~~

~~means for determining, based at least in part on the group size of the first sidelink group, whether each of the plurality of members of the first sidelink group uses separate feedback resources for providing acknowledgment feedback information to other of the plurality of members of the first sidelink group.~~

2923. An apparatus for wireless communication at a first user equipment (UE), comprising:

~~means for configuring~~ at least one processor; and

at least one memory coupled to the at least one processor, the at least one processor configured to cause the first UE to:

configure a first sidelink group for sidelink groupcast communication, wherein the first sidelink group ~~include a plurality of members including~~ includes at least the first UE and a second UE;

~~means for determining~~ determine a member identification of the first UE;

~~means for determining~~ determine, based at least in part on ~~a group size of the first sidelink group and the determined~~ member identification of the first UE, a feedback resource configuration ~~for the sidelink group~~ corresponding to common feedback resources associated with the first sidelink group based at least in part on a group size of the first sidelink group exceeding a threshold;

~~means for transmitting, to others of the plurality of~~ transmit, to other members of the first sidelink group, sidelink groupcast information that indicates at least the feedback resource configuration;

determine, at the first UE, an identification for communication with the first sidelink group; and

communicate with the first sidelink group based at least in part on the identification for communication and the feedback resource configuration.

24. An apparatus for wireless communication at a first user equipment (UE), comprising:

means for receiving sidelink groupcast information of a first sidelink group, the sidelink groupcast information including a group size of the first sidelink group, and a member identification of the first UE within the first sidelink group, wherein the first sidelink group includes at least the first UE and a second UE;

means for determining, at the first UE, an identification for communication with the first sidelink group ~~based at least in part on the sidelink groupcast information; and;~~

means for determining a feedback resource configuration corresponding to common feedback resources associated with the first sidelink group based at least in part on the group size of the first sidelink group exceeding a threshold; and

means for communicating with the first sidelink group based at least in part on the ~~determined~~ identification and the feedback resource configuration ~~for communication.~~

~~30~~25. The apparatus of claim 29~~24~~, wherein: the member identification of the first UE is included as a subset of bits of a source layer 2 identification.

~~the~~26. The apparatus of claim 24, further comprising:
means for determining, based at least in part on the group size of the first sidelink group and the member identification of the first UE within the first sidelink group, a set of feedback resources for transmitting feedback to one or more members of the first sidelink group.

27. The apparatus of claim 26, further comprising:
means for receiving a first groupcast communication from the second UE;
means for determining feedback for the first groupcast communication; and
means for transmitting the feedback for the first groupcast communication to the second UE using the set of feedback resources.

28. The apparatus of claim 24, wherein the sidelink groupcast information is received at an application layer of the first UE.

29. An apparatus for wireless communication at a first user equipment (UE), comprising:

means for configuring a first sidelink group for sidelink groupcast communication, wherein the first sidelink group includes at least the first UE and a second UE;

means for determining a member identification of the first UE;
means for determining, based at least in part on the member identification of the first UE, a feedback resource configuration ~~includes a common feedback corresponding~~ to common feedback resources associated with the first sidelink group based at least in part on a group size of the first sidelink group exceeding a threshold;

means for transmitting, to other members of the first sidelink group, sidelink groupcast information that indicates at least the feedback resource ~~used~~ configuration;

means for determining, at the first UE, an identification for communication with the first sidelink group; and

means for communicating with the first sidelink group based at least in part on the identification for communication and the feedback resource configuration.

30. A non-transitory computer-readable medium storing code for wireless communication at a first user equipment (UE), the code comprising instructions executable by the plurality of members or separate feedback resources corresponding to each of the plurality of members, at least one processor to:

receive sidelink groupcast information of a first sidelink group, the sidelink groupcast information including a group size of the first sidelink group, and a member identification of the first UE within the first sidelink group, wherein the first sidelink group includes at least the first UE and a second UE;

determine, at the first UE, an identification for communication with the first sidelink group;

determine a feedback resource configuration corresponding to common feedback resources associated with the first sidelink group based at least in part on the group size of the first sidelink group exceeding a threshold; and

communicate with the first sidelink group based at least in part on the identification for communication.

31. The non-transitory computer-readable medium of claim 30, wherein the member identification of the first UE is included as a subset of bits of a source layer 2 identification.

32. The non-transitory computer-readable medium of claim 30, wherein the instructions are further executable by the at least one processor to:

determine, based at least in part on the group size of the first sidelink group and the member identification of the first UE within the first sidelink group, a set of feedback resources for transmitting feedback to one or more members of the first sidelink group.

33. The non-transitory computer-readable medium of claim 32, wherein the instructions are further executable by the at least one processor to:

receive a first groupcast communication from the second UE;

determine feedback for the first groupcast communication; and

transmit the feedback for the first groupcast communication to the second UE using the set of feedback resources.

34. The non-transitory computer-readable medium of claim 30, wherein the sidelink groupcast information is received at an application layer of the first UE.

35. A non-transitory computer-readable medium storing code for wireless communication at a first user equipment (UE), the code comprising instructions executable by at least one processor to:

configure a first sidelink group for sidelink groupcast communication, wherein the first sidelink group include at least the first UE and a second UE;

determine a member identification of the first UE;

determine, based at least in part on the member identification of the first UE, a feedback resource configuration corresponding to common feedback resources associated with the first sidelink group based at least in part on a group size of the first sidelink group exceeding a threshold;

transmit, to other members of the first sidelink group, sidelink groupcast information that indicates at least the feedback resource configuration;

determine, at the first UE, an identification for communication with the first sidelink group; and

communicate with the first sidelink group based at least in part on the identification for communication and the feedback resource configuration.

36. The apparatus of claim 22, wherein the member identification of the first UE is included as a subset of bits of a source layer 2 identification.

37. The apparatus of claim 22, wherein the at least one processor is further configured to:

determine, based at least in part on the group size of the first sidelink group and the member identification of the first UE within the first sidelink group, a set of feedback resources for transmitting feedback to one or more members of the first sidelink group.

38. The apparatus of claim 37, wherein the at least one processor is further configured to:

receive a first groupcast communication from the second UE;

determine feedback for the first groupcast communication; and

transmit the feedback for the first groupcast communication to the second UE using the set of feedback resources.

39. The apparatus of claim 22, wherein the sidelink groupcast information is received at an application layer of the first UE.

40. The apparatus of claim 22, wherein the at least one processor is further configured to:

configure an access stratum layer at the first UE for a quality of service (QoS) flow for a groupcast communications associated with a layer-2 identification.

41. The apparatus of claim 24, further comprising:

means for configuring an access stratum layer at the first UE for a quality of service (QoS) flow for a groupcast communications associated with a layer-2 identification.

42. The non-transitory computer-readable medium of claim 30, wherein the instructions are further executable by the at least one processor to:

configure an access stratum layer at the first UE for a quality of service (QoS) flow for a groupcast communications associated with a layer-2 identification.

43. The apparatus of claim 22, further comprising:

an antenna array, the at least one processor configured to cause the antenna array to:

communicate with the first sidelink group.

44. The apparatus of claim 23, further comprising:

an antenna array, the at least one processor configured to cause the antenna array to:

communicate with the first sidelink group.

45. The apparatus of claim 22, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

46. The apparatus of claim 24, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification

for communication is a destination layer-2 identification based at least in part on the group identifier.

47. The non-transitory computer-readable medium of claim 30, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

48. The method of claim 16, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

49. The apparatus of claim 23, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

50. The apparatus of claim 29, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

51. The non-transitory computer-readable medium of claim 35, wherein the sidelink groupcast information further includes a group identifier of the first sidelink group, and wherein the identification for communication is a destination layer-2 identification based at least in part on the group identifier.

52. The method of claim 1, wherein the feedback resource configuration indicates the common feedback resources for transmission of negative acknowledgment feedback.

53. The method of claim 1, wherein the sidelink groupcast information is received at a group management mid-ware layer at the first UE.

54. The apparatus of claim 22, wherein the feedback resource configuration indicates the common feedback resources for transmission of negative acknowledgment feedback.

55. The apparatus of claim 22, wherein the sidelink groupcast information is received at a group management mid-ware layer at the first UE.

56. The apparatus of claim 24, wherein the feedback resource configuration indicates the common feedback resources for transmission of negative acknowledgment feedback.

57. The apparatus of claim 24, wherein the sidelink groupcast information is received at a group management mid-ware layer at the first UE.

58. The non-transitory computer-readable medium of claim 30, wherein the feedback resource configuration indicates the common feedback resources for transmission of negative acknowledgment feedback.

59. The non-transitory computer-readable medium of claim 30, wherein the sidelink groupcast information is received at a group management mid-ware layer at the first UE.