CLAIMS

1. A method for wireless communication, comprising:

receiving a semi-persistent assignment for a user equipment (UE), the semi-persistent assignment being valid for multiple transmissions of data;

obtaining an assignment of acknowledgement (ACK) resource from the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data;

receiving a transmission of data sent in accordance with the semi-persistent assignment;

determining ACK information for the transmission of data; and

sending the ACK information with the ACK resource.

2. The method of claim 1, wherein the obtaining the assignment of ACK resource comprises

obtaining an index of the ACK resource from the semi-persistent assignment, and

determining the ACK resource based on the index and a set of configured ACK resources.

3. The method of claim 1, wherein the obtaining the assignment of ACK resource comprises

obtaining an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment, and

determining the ACK resource based on the index.

4. The method of claim 3, wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a transmit power control (TPC) command field.

5. The method of claim 3, wherein the scheduling message is also used to send scheduling information for a single transmission of data with dynamic scheduling.

6. The method of claim 1, wherein the receiving the semi-persistent assignment comprises

detecting for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling, and

obtaining the semi-persistent assignment from the scheduling message.

7. The method of claim 1, wherein the semi-persistent assignment is received on a physical downlink control channel (PDCCH) and the transmission of data is received on a physical downlink shared channel (PDSCH), and wherein the ACK resource is for a physical uplink control channel (PUCCH).

8. An apparatus for wireless communication, comprising:

at least one processor configured to receive a semi-persistent assignment for a user equipment (UE), the semi-persistent assignment being valid for multiple transmissions of data, to obtain an assignment of acknowledgement (ACK) resource from the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data, to receive a transmission of data sent in accordance with the semi-persistent assignment, to determine ACK information for the transmission of data, and to send the ACK information with the ACK resource.

9. The apparatus of claim 8, wherein the at least one processor is configured to obtain an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment and to determine the ACK resource based on the index, and wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a transmit power control (TPC) command field.

10. The apparatus of claim 8, wherein the at least one processor is configured to detect for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling, and to obtain the semi-persistent assignment from the scheduling message.

11. An apparatus for wireless communication, comprising:

means for receiving a semi-persistent assignment for a user equipment (UE), the semi-persistent assignment being valid for multiple transmissions of data;

means for obtaining an assignment of acknowledgement (ACK) resource from the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data;

means for receiving a transmission of data sent in accordance with the semi-persistent assignment;

means for determining ACK information for the transmission of data; and

means for sending the ACK information with the ACK resource.

12. The apparatus of claim 11, wherein the means for obtaining the assignment of ACK resource comprises

means for obtaining an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment, the at least one field comprising at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a transmit power control (TPC) command field, and

means for determining the ACK resource based on the index.

13. The apparatus of claim 11, wherein the means for receiving the semi-persistent assignment comprises

means for detecting for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling, and

means for obtaining the semi-persistent assignment from the scheduling message.

14. A method for wireless communication, comprising:

receiving a first scheduling message carrying scheduling information for a single transmission of data;

receiving a first transmission of data sent in accordance with the scheduling information;

sending first acknowledgement (ACK) information for the first transmission of data with first ACK resource associated with a resource used to send the first scheduling message;

receiving a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data;

receiving a second transmission of data sent in accordance with the semi-persistent assignment; and

sending second ACK information for the second transmission of data with second ACK resource conveyed by the semi-persistent assignment.

15. The method of claim 14, further comprising:

obtaining an index of the second ACK resource from at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

16. The method of claim 14, further comprising:

detecting for the first scheduling message based on a first cell radio network temporary identifier (C-RNTI) assigned to a user equipment (UE); and

detecting for the second scheduling message based on a second C-RNTI assigned to the UE for semi-persistent scheduling.

17. The method of claim 14, further comprising:

obtaining a first modulation and coding scheme (MCS) value from the first scheduling message, the first MCS value being one of a first plurality of MCS values applicable for dynamic scheduling;

processing the first transmission of data in accordance with the first MCS value;

obtaining a second MCS value from the second scheduling message, the second MCS value being one of a second plurality of MCS values applicable for semi-persistent scheduling, the second plurality of MCS values being fewer than the first plurality of MCS values; and

processing the second transmission of data in accordance with the second MCS value.

18. The method of claim 14, wherein the first ACK resource is valid for a single transmission of ACK information, and wherein the second ACK resource is valid for multiple transmissions of ACK information.

19. An apparatus for wireless communication, comprising:

at least one processor configured to receive a first scheduling message carrying scheduling information for a single transmission of data, to receive a first transmission of data sent in accordance with the scheduling information, to send first acknowledgement (ACK) information for the first transmission of data with first ACK resource associated with a resource used to send the first scheduling message, to receive a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, to receive a second transmission of data sent in accordance with the semi-persistent assignment, and to send second ACK information for the second transmission of data with second ACK resource conveyed by the semi-persistent assignment.

20. The apparatus of claim 19, wherein the at least one processor is configured to obtain an index of the second ACK resource from at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

21. The apparatus of claim 19, wherein the at least one processor is configured to detect for the first scheduling message based on a first cell radio network temporary identifier (C-RNTI) assigned to a user equipment (UE), and to detect for the second scheduling message based on a second C-RNTI assigned to the UE for semi-persistent scheduling.

22. A method for wireless communication, comprising:

assigning acknowledgement (ACK) resource to a user equipment (UE);

sending a semi-persistent assignment comprising the ACK resource to the UE, the semi-persistent assignment being valid for multiple transmissions of data, the ACK resource being assigned to the UE for the multiple transmissions of data;

sending a transmission of data in accordance with the semi-persistent assignment to the UE; and

receiving ACK information for the transmission of data, the ACK information being sent by the UE with the ACK resource.

23. The method of claim 22, wherein the sending the semi-persistent assignment comprises

mapping an index of the ACK resource to at least one field of a scheduling message,

mapping remaining information for the semi-persistent assignment to remaining fields and bits of the scheduling message, and

sending the scheduling message to the UE.

24. The method of claim 23, wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a transmit power control (TPC) command field.

25. The method of claim 23, wherein the scheduling message is also used to send scheduling information for a single transmission of data with dynamic scheduling.

26. The method of claim 22, wherein the sending the semi-persistent assignment comprises

generating a scheduling message carrying the semi-persistent assignment, and

processing the scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling.

27. The method of claim 22, wherein the semi-persistent assignment is sent on a physical downlink control channel (PDCCH) and the transmission of data is sent

on a physical downlink shared channel (PDSCH), and wherein the ACK resource is for a physical uplink control channel (PUCCH).

28. An apparatus for wireless communication, comprising:

at least one processor configured to assign acknowledgement (ACK) resource to a user equipment (UE), to send a semi-persistent assignment comprising the ACK resource to the UE, the semi-persistent assignment being valid for multiple transmissions of data, the ACK resource being assigned to the UE for the multiple transmissions of data, to send a transmission of data in accordance with the semi-persistent assignment to the UE, and to receive ACK information for the transmission of data, the ACK information being sent by the UE with the ACK resource.

29. The apparatus of claim 28, wherein the at least one processor is configured to map an index of the ACK resource to at least one field of a scheduling message, the at least one field comprising at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a transmit power control (TPC) command field, to map remaining information for the semi-persistent assignment to remaining fields and bits of the scheduling message, and to send the scheduling message to the UE.

30. The apparatus of claim 28, wherein the at least one processor is configured to generate a scheduling message carrying the semi-persistent assignment, and to process the scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling.

31. A method for wireless communication, comprising:

sending to a user equipment (UE) a first scheduling message carrying scheduling information for a single transmission of data;

sending a first transmission of data in accordance with the scheduling information to the UE;

receiving first acknowledgement (ACK) information for the first transmission of data, the first ACK information being sent by the UE with first ACK resource associated with a resource used to send the first scheduling message;

sending to the UE a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data;

sending a second transmission of data in accordance with the semi-persistent assignment to the UE; and

receiving second ACK information for the second transmission of data, the second ACK information being sent by the UE with second ACK resource conveyed by the semi-persistent assignment.

32. The method of claim 31, further comprising:

mapping an index of the second ACK resource to at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

33. The method of claim 31, further comprising:

processing the first scheduling message with a first cell radio network temporary identifier (C-RNTI) assigned to the UE; and

processing the second scheduling message with a second C-RNTI assigned to the UE for semi-persistent scheduling.

34. The method of claim 31, further comprising:

selecting a first modulation and coding scheme (MCS) value from a first plurality of MCS values applicable for dynamic scheduling;

processing the first transmission of data in accordance with the first MCS value;

selecting a second MCS value from a second plurality of MCS values applicable for semi-persistent scheduling, the second plurality of MCS values being fewer than the first plurality of MCS values; and

processing the second transmission of data in accordance with the second MCS value.

35. The method of claim 31, wherein the first ACK resource is valid for a single transmission of ACK information, and wherein the second ACK resource is valid for multiple transmissions of ACK information.

36. An apparatus for wireless communication, comprising:

at least one processor configured to send to a user equipment (UE) a first scheduling message carrying scheduling information for a single transmission of data, to send a first transmission of data in accordance with the scheduling information to the UE, to receive first acknowledgement (ACK) information for the first transmission of data on first ACK resource associated with a resource used to send the first scheduling message, to send to the UE a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, to send a second transmission of data in accordance with the semi-persistent assignment to the UE, and to receive second ACK information for the second transmission of data on second ACK resource conveyed by the semi-persistent assignment.

37. The apparatus of claim 36, wherein the at least one processor is configured to map an index of the second ACK resource to at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

38. The apparatus of claim 36, wherein the at least one processor is configured to process the first scheduling message with a first cell radio network temporary identifier (C-RNTI) assigned to the UE, and to process the second scheduling message with a second C-RNTI assigned to the UE for semi-persistent scheduling.

CLAIMS

1. A method for wireless communication in a user equipment (UE), comprising:

receiving a semi-persistent assignment for the (UE), wherein the semi-persistent assignment is valid for multiple transmissions of data and conveys, in a transmit power control (TPC) field of the semi-persistent assignment, an assignment of an acknowledgement (ACK) resource for sending ACK information for a transmission of data;

obtaining the assignment of the ACK resource from the TPC field of the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data;

receiving the transmission of data sent in accordance with the semi-persistent assignment;

determining the ACK information for the transmission of data; and

sending the ACK information with the assigned ACK resource.

2. The method of claim **1**, wherein the obtaining the assignment of the ACK resource comprises:

obtaining an index of the ACK resource from the semi-persistent assignment; and

determining the ACK resource based on the index and a set of configured ACK resources.

3. The method of claim **1**, wherein the obtaining the assignment of the ACK resource comprises:

obtaining an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment; and

determining the ACK resource based on the index.

4. The method of claim **3**, wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a combination thereof.

5. The method of claim **3**, wherein the scheduling message is also used to send scheduling information for a single transmission of data with dynamic scheduling.

6. The method of claim **1**, wherein the receiving the semi-persistent assignment comprises:

detecting for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling; and

obtaining the semi-persistent assignment from the scheduling message.

7. The method of claim **1**, wherein the semi-persistent assignment is received on a physical downlink control channel (PDCCH) and the transmission of data is received on a physical downlink shared channel (PDSCH), and wherein the ACK resource is for a physical uplink control channel (PUCCH).

8. An apparatus for wireless communication, comprising:

at least one processor configured:

to receive a semi-persistent assignment for a user equipment (UE), wherein the semi-persistent assignment is valid for multiple transmissions of data and conveys, in a transmit power control (TPC) field of the semi-persistent assignment, an assignment of an acknowl-

edgement (ACK) resource for sending ACK information for a transmission of data,

to obtain the assignment of the ACK resource from the TPC field of the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data,

to receive the transmission of data sent in accordance with the semi-persistent assignment,

to determine the ACK information for the transmission of data, and

to send the ACK information with the assigned ACK resource; and

a memory coupled to the at least one processor.

9. The apparatus of claim **8**, wherein the at least one processor is configured to obtain an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment and to determine the ACK resource based on the index, and wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a combination thereof.

10. The apparatus of claim **8**, wherein the at least one processor is configured to detect for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling, and to obtain the semi-persistent assignment from the scheduling message.

11. An apparatus for wireless communication, comprising:

means for receiving a semi-persistent assignment for a user equipment (UE), wherein the semi-persistent assignment is valid for multiple transmissions of data and conveys, in a transmit power control (TPC) field of the semi-persistent assignment, an assignment of an acknowledgement (ACK) resource for sending ACK information for a transmission of data;

means for obtaining the assignment of the ACK resource from the TPC field of the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data;

means for receiving the transmission of data sent in accordance with the semi-persistent assignment;

means for determining the ACK information for the transmission of data; and

means for sending the ACK information with the assigned ACK resource.

12. The apparatus of claim **11**, wherein the means for obtaining the assignment of the ACK resource comprises:

means for obtaining an index of the ACK resource from at least one field of a scheduling message carrying the semi-persistent assignment, the at least one field comprising at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a combination thereof; and

means for determining the ACK resource based on the index.

13. The apparatus of claim **11**, wherein the means for receiving the semi-persistent assignment comprises:

means for detecting for a scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling; and

means for obtaining the semi-persistent assignment from the scheduling message.

14. A computer program product, comprising:

a non-transitory computer-readable medium comprising:

code for causing at least one computer to receive a semi-persistent assignment for a user equipment (UE), wherein the semi-persistent assignment is valid for multiple transmissions of data and conveys, in a trans-

mit power control (TPC) field of the semi-persistent assignment, an assignment of an acknowledgement (ACK) resource for sending ACK information for a transmission of data;

code for causing the at least one computer to obtain the assignment of the ACK resource from the TPC field of the semi-persistent assignment, the ACK resource being assigned to the UE for the multiple transmissions of data;

code for causing the at least one computer to receive the transmission of data sent in accordance with the semi-persistent assignment;

code for causing the at least one computer to determine the ACK information for the transmission of data; and

code for causing the at least one computer to send the ACK information with the assigned ACK resource.

15. A method for wireless communication in a user equipment (UE), comprising:

receiving a first scheduling message carrying scheduling information for a single transmission of data;

receiving a first transmission of data sent in accordance with the scheduling information;

sending first acknowledgement (ACK) information for the first transmission of data with a first ACK resource associated with a resource used to send the first scheduling message;

receiving a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, wherein the semi-persistent assignment conveys, in a transmit power control (TPC) field of the semi-persistent assignment, a second ACK resource for sending second ACK information for a second transmission of data;

receiving the second transmission of data sent in accordance with the semi-persistent assignment; and

sending the second ACK information for the second transmission of data with the assigned second ACK resource conveyed in the TPC field of the semi-persistent assignment.

16. The method of claim **15**, further comprising:

obtaining an index of the second ACK resource from at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

17. The method of claim **15**, further comprising:

detecting for the first scheduling message based on a first cell radio network temporary identifier (C-RNTI) assigned to the UE; and

detecting for the second scheduling message based on a second C-RNTI assigned to the UE for semi-persistent scheduling.

18. The method of claim **15**, further comprising:

obtaining a first modulation and coding scheme (MCS) value from the first scheduling message, the first MCS value being one of a first plurality of MCS values applicable for dynamic scheduling;

processing the first transmission of data in accordance with the first MCS value;

obtaining a second MCS value from the second scheduling message, the second MCS value being one of a second plurality of MCS values applicable for semi-persistent scheduling, the second plurality of MCS values being fewer than the first plurality of MCS values; and

processing the second transmission of data in accordance with the second MCS value.

19. The method of claim **15**, wherein the first ACK resource is valid for a single transmission of ACK information, and wherein the second ACK resource is valid for multiple transmissions of ACK information.

20. An apparatus for wireless communication, comprising:

at least one processor configured:

to receive a first scheduling message carrying scheduling information for a single transmission of data,

to receive a first transmission of data sent in accordance with the scheduling information,

to send first acknowledgement (ACK) information for the first transmission of data with a first ACK resource associated with a resource used to send the first scheduling message,

to receive a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, wherein the semi-persistent assignment conveys, in a transmit power control (TPC) field of the semi-persistent assignment, a second ACK resource for sending second ACK information for a second transmission of data,

to receive the second transmission of data sent in accordance with the semi-persistent assignment, and

to send the second ACK information for the second transmission of data with the assigned second ACK resource conveyed in the TPC field of the semi-persistent assignment; and

a memory coupled to the at least one processor.

21. The apparatus of claim **20**, wherein the at least one processor is configured to obtain an index of the second ACK resource from at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

22. The apparatus of claim **20**, wherein the at least one processor is configured to detect for the first scheduling message based on a first cell radio network temporary identifier (C-RNTI) assigned to a user equipment (UE), and to detect for the second scheduling message based on a second C-RNTI assigned to the UE for semi-persistent scheduling.

23. A method for wireless communication in a node B, comprising:

assigning an acknowledgement (ACK) resource to a user equipment (UE);

sending a semi-persistent assignment comprising the ACK resource to the UE, the semi-persistent assignment being valid for multiple transmissions of data, the ACK resource being assigned to the UE for the multiple transmissions of data and being conveyed in a transmit power control (TPC) field of the semi-persistent assignment; sending a transmission of data in accordance with the semi-persistent assignment to the UE; and

receiving ACK information for the transmission of data, the ACK information being sent by the UE with the assigned ACK resource.

24. The method of claim **23**, wherein the sending the semi-persistent assignment comprises:

mapping an index of the ACK resource to at least one field of a scheduling message;

mapping remaining information for the semi-persistent assignment to remaining fields and bits of the scheduling message; and

sending the scheduling message to the UE.

25. The method of claim **24**, wherein the at least one field comprises at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a combination thereof.

26. The method of claim **24**, wherein the scheduling message is also used to send scheduling information for a single transmission of data with dynamic scheduling.

27. The method of claim **23**, wherein the sending the semi-persistent assignment comprises:

generating a scheduling message carrying the semi-persistent assignment; and

processing the scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling.

28. The method of claim **23**, wherein the semi-persistent assignment is sent on a physical downlink control channel (PDCCH) and the transmission of data is sent on a physical downlink shared channel (PDSCH), and wherein the ACK resource is for a physical uplink control channel (PUCCH).

29. An apparatus for wireless communication, comprising:

at least one processor configured:

to assign an acknowledgement (ACK) resource to a user equipment (UE),

to send a semi-persistent assignment comprising the ACK resource to the UE, the semi-persistent assignment being valid for multiple transmissions of data, the ACK resource being assigned to the UE for the multiple transmissions of data and being conveyed in a transmit power control (TPC) field of the semi-persistent assignment,

to send a transmission of data in accordance with the semi-persistent assignment to the UE, and

to receive ACK information for the transmission of data, the ACK information being sent by the UE with the assigned ACK resource; and

a memory coupled to the at least one processor.

30. The apparatus of claim **29**, wherein the at least one processor is configured to map an index of the ACK resource

to at least one field of a scheduling message, the at least one field comprising at least one of a new data indicator field, a redundancy version field, a modulation and coding scheme (MCS) field, or a combination thereof, to map remaining information for the semi-persistent assignment to remaining fields and bits of the scheduling message, and to send the scheduling message to the UE.

31. The apparatus of claim **29**, wherein the at least one processor is configured to generate a scheduling message carrying the semi-persistent assignment, and to process the scheduling message based on a cell radio network temporary identifier (C-RNTI) used for semi-persistent scheduling.

32. A method for wireless communication in a node B, comprising:

sending to a user equipment (UE) a first scheduling message carrying scheduling information for a single transmission of data;

sending a first transmission of data in accordance with the scheduling information to the UE;

receiving first acknowledgement (ACK) information for the first transmission of data, the first ACK information being sent by the UE with a first ACK resource associated with a resource used to send the first scheduling message;

sending to the UE a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, wherein the semi-persistent assignment conveys, in a transmit power control (TPC) field of the semi-persistent assignment, a second ACK resource for sending second ACK information for a second transmission of data;

sending the second transmission of data in accordance with the semi-persistent assignment to the UE; and

receiving the second ACK information for the second transmission of data, the second ACK information being sent by the UE with the assigned second ACK resource conveyed in the TPC field of the semi-persistent assignment.

33. The method of claim **32**, further comprising:

mapping an index of the second ACK resource to at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

34. The method of claim **32**, further comprising:

processing the first scheduling message with a first cell radio network temporary identifier (C-RNTI) assigned to the UE; and

processing the second scheduling message with a second C-RNTI assigned to the UE for semi-persistent scheduling.

35. The method of claim **32**, further comprising:

selecting a first modulation and coding scheme (MCS) value from a first plurality of MCS values applicable for dynamic scheduling;

processing the first transmission of data in accordance with the first MCS value;

selecting a second MCS value from a second plurality of MCS values applicable for semi-persistent scheduling, the second plurality of MCS values being fewer than the first plurality of MCS values; and

processing the second transmission of data in accordance with the second MCS value.

36. The method of claim **32**, wherein the first ACK resource is valid for a single transmission of ACK information, and wherein the second ACK resource is valid for multiple transmissions of ACK information.

37. An apparatus for wireless communication, comprising:
at least one processor configured:
to send to a user equipment (UE) a first scheduling message carrying scheduling information for a single transmission of data,
to send a first transmission of data in accordance with the scheduling information to the UE,
to receive first acknowledgement (ACK) information for the first transmission of data on a first ACK resource associated with a resource used to send the first scheduling message,
to send to the UE a second scheduling message carrying a semi-persistent assignment for multiple transmissions of data, wherein semi-persistent assignment conveys, in a transmit power control (TPC) field of the semi-persistent assignment, a second ACK resource for sending second ACK information for a second transmission of data,
to send the second transmission of data in accordance with the semi-persistent assignment to the UE, and
to receive the second ACK information for the second transmission of data on the assigned second ACK resource conveyed in the TPC field of the semi-persistent assignment; and
a memory coupled to the at least one processor.

38. The apparatus of claim **37**, wherein the at least one processor is configured to map an index of the second ACK resource to at least one field of the second scheduling message, the at least one field carrying an ACK resource index for semi-persistent scheduling and carrying scheduling information for dynamic scheduling.

39. The apparatus of claim **37**, wherein the at least one processor is configured to process the first scheduling mes-

sage with a first cell radio network temporary identifier (C-RNTI) assigned to the UE, and to process the second scheduling message with a second C-RNTI assigned to the UE for semi-persistent scheduling.