

CLAIMS

1. A method for wireless communication at a user equipment (UE), comprising:
 - identifying a random-access preamble for transmission to a base station in a random-access channel occasion as part of a two-step random-access procedure;
 - identifying data or control information for transmission to the base station as part of the two-step random-access procedure; and
 - transmitting both the random-access preamble and the data or control information within the random-access channel occasion, wherein the data or the control information includes at least one of a radio resource control (RRC) setup request, an RRC reestablishment request, an RRC resume request, an RRC system information request, and a cell radio network temporary identifier (C-RNTI).
2. The method of claim 1, wherein transmitting both the random-access preamble and the data or control information within the random-access channel occasion comprises:
 - transmitting the data or control information in the random-access channel occasion with the random-access preamble based at least in part on a number of bytes of the data or control information being below a threshold.
3. The method of claim 2, wherein the threshold is configurable and is based at least in part on the random-access channel occasion.
4. The method of claim 1, wherein identifying the random-access preamble for transmission to the base station in the random-access channel occasion comprises:
 - receiving a control message indicating a plurality of random-access channel occasion configurations; and
 - selecting the random-access channel occasion from the plurality of random-access channel occasion configurations based at least in part on a content or quantity of the data or control information to be transmitted as part of the two-step random-access procedure.
5. The method of claim 4, wherein each random-access channel occasion configuration indicates time and frequency resources for a random-access preamble transmission in a corresponding random-access channel occasion, a correspondence of the corresponding random-access channel occasion to a synchronization signal block, and a resource size for a

data or control information transmission in the corresponding random-access channel occasion.

6. The method of claim 5, wherein the resource size for the data or control information transmission in each random-access channel occasion is based at least in part on data or control information to be transmitted in the random-access channel occasion.

7. The method of claim 5, wherein the resource size for the data or control information transmission in each random-access channel occasion is fixed.

8. The method of claim 1, wherein transmitting both the random-access preamble and the data or control information within the random-access channel occasion comprises:

transmitting the random-access preamble and the data or control information in the random-access channel occasion in a first random-access message of the two-step random-access procedure.

9. The method of claim 8, further comprising:

transmitting additional data or control information in a data channel in the first random-access message but outside of the random-access channel occasion.

10. The method of claim 8, further comprising:

transmitting an indication in the random-access channel occasion of whether additional data or control information is transmitted in a data channel in the first random-access message.

11. The method of claim 8, further comprising:

transmitting an indication in the random-access channel occasion of resources to be used for transmitting additional data or control information in a data channel in the first random-access message.

12. The method of claim 8, further comprising:

receiving a second random-access message from the base station as part of the two-step random-access procedure, the second random-access message being received based at least in part on transmission of the first random-access message.

13. The method of claim 12, wherein the second random-access message comprises a timing advance indication, power control parameters, an uplink grant, a downlink grant, a cell radio network temporary identifier, information for contention resolution, or a combination thereof.
14. The method of claim 1, wherein the data or control information is transmitted on a first set of resources adjacent to a second set of resources on which the random-access preamble is transmitted in the random-access channel occasion.
15. An apparatus for wireless communication at a user equipment (UE), comprising:
 - a processor,
 - memory coupled with the processor; and
 - instructions stored in the memory and executable by the processor to cause the apparatus to:
 - identify a random-access preamble for transmission to a base station in a random-access channel occasion as part of a two-step random-access procedure;
 - identify data or control information for transmission to the base station as part of the two-step random-access procedure; and
 - transmit both the random-access preamble and the data or control information within the random-access channel occasion, wherein the data or the control information includes at least one of a radio resource control (RRC) setup request, an RRC reestablishment request, an RRC resume request, an RRC system information request, and a cell radio network temporary identifier (C-RNTI).
16. The apparatus of claim 15, wherein the instructions to transmit both the random-access preamble and the data or control information within the random-access channel occasion are executable by the processor to cause the apparatus to:
 - transmit the data or control information in the random-access channel occasion with the random-access preamble based at least in part on a number of bytes of the data or control information being below a threshold.
17. The apparatus of claim 16, wherein the threshold is configurable and is based at least in part on the random-access channel occasion.

18. The apparatus of claim 15, wherein the instructions to identify the random-access preamble for transmission to the base station in the random-access channel occasion are executable by the processor to cause the apparatus to:

receive a control message indicating a plurality of random-access channel occasion configurations; and

select the random-access channel occasion from the plurality of random-access channel occasion configurations based at least in part on a content or quantity of the data or control information to be transmitted as part of the two-step random-access procedure.

19. The apparatus of claim 18, wherein each random-access channel occasion configuration indicates time and frequency resources for a random-access preamble transmission in a corresponding random-access channel occasion, a correspondence of the corresponding random-access channel occasion to a synchronization signal block, and a resource size for a data or control information transmission in the corresponding random-access channel occasion.

20. The apparatus of claim 19, wherein the resource size for the data or control information transmission in each random-access channel occasion is based at least in part on data or control information to be transmitted in the random-access channel occasion.

21. The apparatus of claim 19, wherein the resource size for the data or control information transmission in each random-access channel occasion is fixed.

22. The apparatus of claim 15, wherein the instructions to transmit both the random-access preamble and the data or control information within the random-access channel occasion are executable by the processor to cause the apparatus to:

transmit the random-access preamble and the data or control information in the random-access channel occasion in a first random-access message of the two-step random-access procedure.

23. The apparatus of claim 22, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit additional data or control information in a data channel in the first random-access message but outside of the random-access channel occasion.

24. The apparatus of claim 22, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit an indication in the random-access channel occasion of whether additional data or control information is transmitted in a data channel in the first random-access message.

25. The apparatus of claim 22, wherein the instructions are further executable by the processor to cause the apparatus to:

transmit an indication in the random-access channel occasion of resources to be used for transmitting additional data or control information in a data channel in the first random-access message.

26. The apparatus of claim 22, wherein the instructions are further executable by the processor to cause the apparatus to:

receive a second random-access message from the base station as part of the two-step random-access procedure, the second random-access message being received based at least in part on transmission of the first random-access message.

27. The apparatus of claim 26, wherein the second random-access message comprises a timing advance indication, power control parameters, an uplink grant, a downlink grant, a cell radio network temporary identifier, information for contention resolution, or a combination thereof.

28. The apparatus of claim 15, wherein the data or control information is transmitted on a first set of resources adjacent to a second set of resources on which the random-access preamble is transmitted in the random-access channel occasion.

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

means for identifying a random-access preamble for transmission to a base station in a random-access channel occasion as part of a two-step random-access procedure;

means for identifying data or control information for transmission to the base station as part of the two-step random-access procedure; and

means for transmitting both the random-access preamble and the data or control information within the random-access channel occasion, wherein the data or the control information includes at least one of a radio resource control (RRC) setup request, an RRC reestablishment request, an RRC resume request, an RRC system information request, and a cell radio network temporary identifier (C-RNTI).

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

identify a random-access preamble for transmission to a base station in a random-access channel occasion as part of a two-step random-access procedure;

identify data or control information for transmission to the base station as part of the two-step random-access procedure; and

transmit both the random-access preamble and the data or control information within the random-access channel occasion, wherein the data or the control information includes at least one of a radio resource control (RRC) setup request, an RRC reestablishment request, an RRC resume request, an RRC system information request, and a cell radio network temporary identifier (C-RNTI).