CLAIMS

1. A method of wireless communication at a user equipment (UE), comprising:

detecting a beam failure on a first component carrier (CC);

determining whether to transmit a beam failure recovery request (BFRQ) to a base station on the first CC or a second CC based on whether the first CC or the second CC includes a resource configuration for transmitting the BFRQ, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determining whether to include a new beam information (NBI) report in the BFRQ; and

transmitting the BFRQ to the base station on the first CC when the first CC includes the resource configuration for transmitting the BFRQ or on the second CC when the second CC includes the resource configuration for transmitting the BFRQ and the first CC does not include the resource configuration for transmitting the BFRQ.

2. The method of claim 1, wherein the determination to include the NBI report in the BFRQ is based on a determination to transmit the BFRQ to the base station on the first CC or the second CC.

3. The method of claim 1, wherein the BFRQ including the NBI report is transmitted to the base station on the second CC, wherein the NBI report includes at least one field or index indicating beam information or indicating there is no new beam.

4. The method of claim 1, wherein the BFRQ is transmitted to the base station on the first CC without the NBI report, a new beam for the first CC being identified based on one or more resources of the BFRQ.

5. The method of claim 1, further comprising:

identifying a new beam for the first CC.

6. The method of claim 5, wherein the BFRQ is transmitted to the base station on the first CC using a random access channel (RACH) procedure when the new beam for the first CC is identified.

7. The method of claim 1, wherein the BFRQ is transmitted to the base station on the first CC using a random access channel (RACH) procedure; or

wherein the BFRQ is transmitted to the base station on the second CC in a physical uplink control channel (PUCCH) or a medium access control (MAC) control element (MAC-CE) in a physical uplink shared channel (PUSCH).

8. The method of claim 7, wherein the resource configuration for the first CC is indicated using a contention free RACH (CFRA) procedure, wherein the BFRQ is transmitted on the first CC based on the indicated resource configuration.

9. The method of claim 7, wherein the resource configuration for the second CC is indicated using the PUCCH or the MAC-CE in the PUSCH, wherein the BFRQ is transmitted on the second CC based on the indicated resource configuration.

10. The method of claim 1, wherein an index in the NBI report of the BFRQ indicates there is no new beam.

11. The method of claim 1, wherein a reserved field in a PUCCH or a MAC-CE in a PUSCH of the BFRQ indicates that a new beam is not identified.

12. The method of claim 1, wherein the BFRQ indicates whether a new beam is identified based on at least one BFRQ format.

13. The method of claim 12, wherein the at least one BFRQ format is without a field or index and indicates that the new beam is not identified.

14. The method of claim 1, further comprising:

measuring a beam failure detection (BFD) RS on the first CC, wherein the beam failure is detected on the first CC by measuring the BFD RS.

15. A method of wireless communication at a base station, comprising:

receiving a beam failure recovery request (BFRQ) from a user equipment (UE) on a first component carrier (CC) when the first CC includes a resource configuration for BFRQ reception or on a second CC when the second CC includes the resource

configuration for the BFRQ reception and the first CC does not include the resource configuration for the BFRQ reception, wherein the BFRQ indicates a beam failure on the first CC, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determining a new beam for the first CC, wherein the determination of the new beam is based on a random access channel (RACH) procedure when the BFRQ is received on the first CC or is based on a new beam information (NBI) report in the BFRQ when the BFRQ is received on the second CC; and

initiating a beam failure recovery (BFR) procedure with the UE for the first CC based on the BFRQ and the determination of the new beam.

16. The method of claim 15, wherein the BFRQ including the NBI report is received from the UE on the second CC, wherein the NBI report includes at least one field or index indicating beam information or indicating there is no new beam.

17. The method of claim 15, wherein the BFRQ is received from the UE on the first CC without the NBI report, the new beam for the first CC being identified based on one or more resources of the BFRQ.

18. The method of claim 15, wherein the determination of the new beam for the first CC is based on whether the BFRQ indicates the new beam.

19. The method of claim 15, wherein determining the new beam for the first CC further comprises:

identifying whether the BFRQ indicates the new beam for the first CC.

20. The method of claim 15, wherein the BFRQ is received from the UE on the first CC using the RACH procedure; or

wherein the BFRQ is received from the UE on the second CC in a physical uplink control channel (PUCCH) or a medium access control (MAC) control element (MAC-CE) in a physical uplink shared channel (PUSCH).

21. The method of claim 15, wherein the BFRQ includes the NBI report when a candidate RS or RSRP threshold on the first CC is configured.

22. The method of claim 15, wherein an index in the NBI report of the BFRQ indicates there is no new beam.

23. The method of claim 15, wherein a reserved field in a PUCCH or a MAC-CE in a PUSCH of the BFRQ indicates the new beam is not identified.

24. The method of claim 15, further comprising:

transmitting a physical downlink control channel (PDCCH) to the UE when the BFRQ is received on the second CC; and

instructing the UE to perform the RACH procedure on the first CC based on the determined new beam.

25. The method of claim 15, further comprising:

determining at least one BFRQ format of the BFRQ; and

identifying whether the BFRQ indicates the new beam for the first CC based on the determined at least one BFRQ format.

26. The method of claim 25, wherein the at least one BFRQ format is without a field or index and indicates that the new beam is not identified.

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

a memory; and

at least one processor coupled to the memory and configured to:

detect a beam failure on a first component carrier (CC);

determine whether to transmit a beam failure recovery request (BFRQ) to a base station on the first CC or a second CC based on whether the first CC or the second CC includes a resource configuration for transmitting the BFRQ, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determine whether to include a new beam information (NBI) report in the BFRQ; and

transmit the BFRQ to the base station on the first CC when the first CC includes the resource configuration for transmitting the BFRQ or on the second

CC when the second CC includes the resource configuration for transmitting the BFRQ and the first CC does not include the resource configuration for transmitting the BFRQ.

28. The apparatus of claim 27, wherein the determination to include the NBI report in the BFRQ is based on a determination to transmit the BFRQ to the base station on the first CC or the second CC.

29. The apparatus of claim 27, wherein the BFRQ including the NBI report is transmitted to the base station on the second CC, wherein the NBI report includes at least one field or index indicating beam information or indicating there is no new beam.

30. The apparatus of claim 27, wherein the BFRQ is transmitted to the base station on the first CC without the NBI report, a new beam for the first CC being identified based on one or more resources of the BFRQ.

31. The apparatus of claim 27, wherein the at least one processor is further configured to:

identify a new beam for the first CC.

32. The apparatus of claim 31, wherein the BFRQ is transmitted to the base station on the first CC using a random access channel (RACH) procedure when the new beam for the first CC is identified.

33. The apparatus of claim 27, wherein the BFRQ is transmitted to the base station on the first CC using a random access channel (RACH) procedure; or

wherein the BFRQ is transmitted to the base station on the second CC in a physical uplink control channel (PUCCH) or a medium access control (MAC) control element (MAC-CE) in a physical uplink shared channel (PUSCH).

34. The apparatus of claim 33, wherein the resource configuration for the first CC is indicated using a contention free RACH (CFRA) procedure, wherein the BFRQ is transmitted on the first CC based on the indicated resource configuration.

35. The apparatus of claim 33, wherein the resource configuration for the second CC is indicated using the PUCCH or the MAC-CE in the PUSCH, wherein the BFRQ is transmitted on the second CC based on the indicated resource configuration.

36. The apparatus of claim 27, wherein an index in the NBI report of the BFRQ indicates there is no new beam.

37. The apparatus of claim 27, wherein a reserved field in a PUCCH or a MAC-CE in a PUSCH of the BFRQ indicates that a new beam is not identified.

38. The apparatus of claim 27, wherein the BFRQ indicates whether the new beam is identified based on at least one BFRQ format.

39. The apparatus of claim 38, wherein the at least one BFRQ format is without a field or index and indicates that the new beam is not identified.

40. The apparatus of claim 27, wherein the at least one processor is further configured to:

measure a beam failure detection (BFD) RS on the first CC, wherein the beam failure is detected on the first CC by measuring the BFD RS.

41. An apparatus for wireless communication at a base station, comprising:

a memory; and

at least one processor coupled to the memory and configured to:

receive a beam failure recovery request (BFRQ) from a user equipment (UE) on a first component carrier (CC) when the first CC includes a resource configuration for BFRQ reception or on a second CC when the second CC includes the resource configuration for the BFRQ reception and the first CC does not include the resource configuration for the BFRQ reception, wherein the BFRQ indicates a beam failure on the first CC, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determine the new beam for the first CC, wherein the determination of the new beam is based on a random access channel (RACH) procedure when the

BFRQ is received on the first CC or is based on a new beam information (NBI) report in the BFRQ when the BFRQ is received on the second CC; and

initiate a beam failure recovery (BFR) procedure with the UE for the first CC based on the BFRQ and the determination of the new beam.

42. The apparatus of claim 41, wherein the BFRQ including the NBI report is received from the UE on the second CC, wherein the NBI report includes at least one field or index indicating beam information or indicating there is no new beam.

43. The apparatus of claim 41, wherein the BFRQ is received from the UE on the first CC without the NBI report, the new beam for the first CC being identified based on one or more resources of the BFRQ.

44. The apparatus of claim 41, wherein the determination of the new beam for the first CC is based on whether the BFRQ indicates the new beam.

45. The apparatus of claim 41, wherein to determine the new beam for the first CC the at least one processor is further configured to:

identify whether the BFRQ indicates the new beam for the first CC.

46. The apparatus of claim 41, wherein the BFRQ is received from the UE on the first CC using the RACH procedure; or

wherein the BFRQ is received from the UE on the second CC in a physical uplink control channel (PUCCH) or a medium access control (MAC) control element (MAC-CE) in a physical uplink shared channel (PUSCH).

47. The apparatus of claim 41, wherein the BFRQ includes the NBI report when a candidate RS or RSRP threshold on the first CC is configured.

48. The apparatus of claim 41, wherein an index in the NBI report of the BFRQ indicates there is no new beam.

49. The apparatus of claim 41, wherein a reserved field in a PUCCH or a MAC-CE in a PUSCH of the BFRQ indicates the new beam is not identified.

50. The apparatus of claim 41, wherein the at least one processor is further configured to:

transmit a physical downlink control channel (PDCCH) to the UE when the BFRQ is received on the second CC; and

instruct the UE to perform the RACH procedure on the first CC based on the determined new beam.

51. The apparatus of claim 41, wherein the at least one processor is further configured to:

determine at least one BFRQ format of the BFRQ; and

identify whether the BFRQ indicates the new beam for the first CC based on the determined at least one BFRQ format.

52. The apparatus of claim 51, wherein the at least one BFRQ format is without a field or index and indicates that the new beam is not identified.

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

means for detecting a beam failure on a first component carrier (CC);

means for determining whether to transmit a beam failure recovery request (BFRQ) to a base station on the first CC or a second CC based on whether the first CC or the second CC includes a resource configuration for transmitting the BFRQ, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

means for determining whether to include a new beam information (NBI) report in the BFRQ; and

means for transmitting the BFRQ to the base station on the first CC when the first CC includes the resource configuration for transmitting the BFRQ or on the second CC when the second CC includes the resource configuration for transmitting the BFRQ and the first CC does not include the resource configuration for transmitting the BFRQ.

54. An apparatus for wireless communication at a base station, comprising:

means for receiving a beam failure recovery request (BFRQ) from a user equipment (UE) on a first component carrier (CC) when the first CC includes a resource

configuration for BFRQ reception or on a second CC when the second CC includes the resource configuration for the BFRQ reception and the first CC does not include the resource configuration for the BFRQ reception, wherein the BFRQ indicates a beam failure on the first CC, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

means for determining a new beam for the first CC, wherein the determination of the new beam is based on a random access channel (RACH) procedure when the BFRQ is received on the first CC or is based on a new beam information (NBI) report in the BFRQ when the BFRQ is received on the second CC; and

means for initiating a beam failure recovery (BFR) procedure with the UE for the first CC based on the BFRQ and the determination of the new beam.

55. A computer-readable medium storing computer executable code for wireless communication at a user equipment (UE), the code when executed by a processor causes the processor to:

detect a beam failure on a first component carrier (CC);

determine whether to transmit a beam failure recovery request (BFRQ) to a base station on the first CC or a second CC based on whether the first CC or the second CC includes a resource configuration for transmitting the BFRQ, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determine whether to include a new beam information (NBI) report in the BFRQ; and

transmit the BFRQ to the base station on the first CC when the first CC includes the resource configuration for transmitting the BFRQ or on the second CC when the second CC includes the resource configuration for transmitting the BFRQ and the first CC does not include the resource configuration for transmitting the BFRQ.

56. A computer-readable medium storing computer executable code for wireless communication at a base station, the code when executed by a processor causes the processor to:

receive a beam failure recovery request (BFRQ) from a user equipment (UE) on a first component carrier (CC) when the first CC includes a resource configuration for BFRQ reception or on a second CC when the second CC includes the resource configuration for the BFRQ reception and the first CC does not include the resource

configuration for the BFRQ reception, wherein the BFRQ indicates a beam failure on the first CC, wherein the first CC is associated with a secondary cell and the second CC is associated with a primary cell;

determine a new beam for the first CC, wherein the determination of the new beam is based on a random access channel (RACH) procedure when the BFRQ is received on the first CC or is based on a new beam information (NBI) report in the BFRQ when the BFRQ is received on the second CC; and

initiate a beam failure recovery (BFR) procedure with the UE for the first CC based on the BFRQ and the determination of the new beam.