

CLAIMS

1. A method of wireless communication performed by a user equipment (UE), comprising:
 - detecting a beam failure associated with a component carrier (CC) of a plurality of CCs that are aggregated;
 - identifying, based at least in part on detecting the beam failure, a CC group in which the CC and one or more other CCs, of the plurality of CCs, are included; and
 - transmitting, to a base station (BS), a beam failure recovery request (BFRQ) communication associated with the CC group.
2. The method of claim 1, wherein the one or more other CCs, included in the CC group, comprises:
 - a subset of CCs included in the plurality of CCs; and
 - wherein the BFRQ communication includes an explicit or implicit indication of a CC group index associated with the CC group.
3. The method of claim 2, wherein the implicit indication of the CC group index comprises at least one of:
 - an indication of a CC index associated with the CC,
 - an indication of another CC index associated with another CC included in the one or more other CCs,
 - transmitting the BFRQ communication using a time domain resource and a frequency domain resource that are associated with the CC group index, or
 - scrambling the BFRQ communication using a scrambling sequence associated with the CC group index.
4. The method of claim 1, further comprising:
 - transmitting, to the BS and using a time domain resource and a frequency domain resource that are based at least in part on the BFRQ communication, a reporting communication that includes an explicit indication of a CC group index associated with the CC group.
5. The method of claim 1, further comprising:
 - transmitting, to the BS and based at least in part on a dynamic reporting rule:
 - an explicit indication of a CC group index associated with the CC group, or
 - an implicit indication of the CC group index.

6. The method of claim 5, further comprising:
 - receiving, from the BS, information identifying the dynamic reporting rule,
 - wherein the information identifying the dynamic reporting rule indicates a time domain resource and a frequency domain resource for transmitting the BFRQ communication; and
 - determining to transmit the implicit indication of the CC group index based at least in part on the dynamic reporting rule indicating the time domain resource and the frequency domain resource for transmitting the BFRQ communication; and
 - wherein transmitting the implicit indication of the CC group index comprises:
 - transmitting the BFRQ communication using the time domain resource and the frequency domain resource.
7. The method of claim 5, wherein the dynamic reporting rule indicates a CC group quantity threshold; and
 - wherein the method further comprises:
 - determining to transmit the implicit indication of the CC group index based at least in part on determining that a quantity of CC groups, configured for the plurality of CCs, does not satisfy the CC group quantity threshold, or
 - determining to transmit the explicit indication of the CC group index based at least in part on determining that the quantity of CC groups, configured for the plurality of CCs, satisfies the CC group quantity threshold.
8. The method of claim 1, wherein the CC and the one or more other CCs are quasi-co-located (QCLed).
9. The method of claim 1, wherein the CC and the one or more other CCs are associated with a same beam failure detection reference signal (BFD-RS).
10. The method of claim 1, wherein the CC and the one or more other CCs are included in a same frequency band.
11. The method of claim 1, wherein the CC group comprises:
 - the plurality of CCs aggregated to the UE by the BS; and
 - wherein transmitting the BFRQ communication associated with the CC group comprises:
 - refraining from indicating a CC index or CC group index in the BFRQ communication.

12. The method of claim 1, wherein identifying the CC group comprises:
receiving, from the BS, an indication that the CC and the one or more other CCs are included in the CC group; and
identifying the CC group based at least in part on the indication that the CC and the one or more other CCs are included in the CC group.
13. The method of claim 1, wherein detecting the beam failure associated with the CC comprises:
detecting the beam failure based at least in part on a beam failure detection reference signal (BFD-RS) transmitted from the BS.
14. A method of wireless communication performed by a base station (BS), comprising:
transmitting, to a user equipment (UE), a beam failure detection reference signal (BFD-RS) associated with a component carrier (CC) of a plurality of CCs that are aggregated; and
receiving, from the UE and based at least in part on transmitting the BFD-RS, a beam failure recovery request (BFRQ) communication associated with a CC group in which the CC and one or more other CCs, of the plurality of CCs, are included.
15. The method of claim 14, wherein the one or more other CCs, included in the CC group, comprises:
a subset of CCs included in the plurality of CCs; and
wherein the BFRQ communication includes an explicit or implicit indication of a CC group index associated with the CC group.
16. The method of claim 15, wherein the implicit indication of the CC group index comprises at least one of:
an indication of a CC index associated with the CC, or
an indication of another CC index associated with another CC included in the one or more other CCs.
17. The method of claim 14, further comprising:
transmitting, to the UE and based at least in part on receiving the BFRQ communication, a scheduling order that indicates a time domain resource and a frequency domain resource that are for reporting an explicit indication of a CC group index associated with the CC group; and
receiving, from the UE and based at least in part on transmitting the scheduling order, a reporting communication that includes the explicit indication of the CC group index.

18. The method of claim 14, wherein the BFRQ communication includes an implicit indication of a CC group index associated with the CC group.
19. The method of claim 14, further comprising:
receiving, from the UE and based at least in part on a dynamic reporting rule:
an explicit indication of a CC group index associated with the CC group, or
an implicit indication of the CC group index.
20. The method of claim 19, further comprising:
transmitting, to the UE, information identifying the dynamic reporting rule,
wherein the information identifying the dynamic reporting rule indicates a time domain resource and a frequency domain resource for transmitting the BFRQ communication; and
wherein receiving the implicit indication of the CC group index comprises:
receiving the BFRQ communication in the time domain resource and the frequency domain resource.
21. The method of claim 20, wherein the dynamic reporting rule indicates a CC group quantity threshold; and
wherein receiving the implicit indication of the CC group index comprises:
receiving the implicit indication of the CC group index based at least in part on a quantity of CC groups, configured for the plurality of CCs, not satisfying the CC group quantity threshold.
22. The method of claim 20, wherein the dynamic reporting rule indicates a CC group quantity threshold; and
wherein receiving the explicit indication of the CC group index comprises:
receiving the explicit indication of the CC group index based at least in part on a quantity of CC groups, configured for the plurality of CCs, satisfying the CC group quantity threshold.
23. The method of claim 14, wherein the CC and the one or more other CCs are quasi-co-located (QCLed).
24. The method of claim 14, wherein the CC and the one or more other CCs are associated with the BFD-RS.

25. The method of claim 14, wherein the CC and the one or more other CCs are included in a same frequency band.
26. The method of claim 14, wherein the CC group includes the plurality of CCs;
wherein the BFRQ communication associated with the CC group does not include an indication of a CC index or CC group index; and
wherein the method further comprises:
determining that the BFRQ communication is associated with the CC group based at least in part on the CC group including the plurality of CCs.
27. The method of claim 14, further comprising:
receiving one or more measurement reports associated with the CC and the one or more other CCs;
grouping, based at least in part on the one or more measurement reports, the CC and the one or more other CCs into the CC group; and
transmitting, to the UE, an indication that the CC group includes the CC and the one or more other CCs.
28. A user equipment (UE), comprising:
a memory; and
one or more processors communicatively coupled to the memory, the one or more processors configured to:
detect a beam failure associated with a component carrier (CC) of a plurality of CCs that are aggregated;
identify, based at least in part on detecting the beam failure, a CC group in which the CC and one or more other CCs, of the plurality of CCs, are included; and
transmit, to a base station (BS), a beam failure recovery request (BFRQ) communication associated with the CC group.
29. The UE of claim 28, wherein the BFRQ communication includes an explicit or implicit indication of a CC group index associated with the CC group.
30. The UE of claim 29, wherein the implicit indication of the CC group index comprises at least one of:
an indication of a CC index associated with the CC,
an indication of another CC index associated with another CC included in the one or more other CCs,

transmitting the BFRQ communication using a time domain resource and a frequency domain resource that are associated with the CC group index, or
scrambling the BFRQ communication using a scrambling sequence associated with the CC group index.

31. The UE of claim 28, wherein the one or more processors are further configured to:
transmit, to the BS and using a time domain resource and a frequency domain resource that are based at least in part on the BFRQ communication, a reporting communication that includes an explicit indication of a CC group index associated with the CC group.

32. The UE of claim 28, wherein the one or more processors are further configured to:
transmit, to the BS and based at least in part on a dynamic reporting rule:
an explicit indication of a CC group index associated with the CC group, or
an implicit indication of the CC group index.

33. The UE of claim 28, wherein the one or more processors are further configured to:
receive, from the BS, information identifying a dynamic reporting rule,
wherein the information identifying the dynamic reporting rule indicates a time domain resource and a frequency domain resource for transmitting the BFRQ communication; and
determine to transmit an implicit indication of a CC group index based at least in part on the dynamic reporting rule indicating the time domain resource and the frequency domain resource for transmitting the BFRQ communication; and
wherein the one or more processors, when transmitting the implicit indication of the CC group index, are configured to:
transmit the BFRQ communication using the time domain resource and the frequency domain resource.

34. The UE of claim 33, wherein the dynamic reporting rule indicates a CC group quantity threshold; and
wherein the one or more processors are further configured to:
determine to transmit the implicit indication of the CC group index based at least in part on determining that a quantity of CC groups, configured for the plurality of CCs, does not satisfy the CC group quantity threshold, or
determine to transmit the explicit indication of the CC group index based at least in part on determining that the quantity of CC groups, configured for the plurality of CCs, satisfies the CC group quantity threshold.

35. The UE of claim 28, wherein the CC and the one or more other CCs are quasi-co-located (QCLed).
36. The UE of claim 28, wherein the CC and the one or more other CCs are associated with a same beam failure detection reference signal (BFD-RS).
37. The UE of claim 28, wherein the CC and the one or more other CCs are included in a same frequency band.
38. The UE of claim 28, wherein the CC group comprises:
the plurality of CCs aggregated to the UE by the BS; and
wherein the one or more processors, when transmitting the BFRQ communication associated with the CC group, are configured to:
refrain from indicating a CC index or CC group index in the BFRQ communication.
39. The UE of claim 28, wherein the one or more processors, when identifying the CC group, are configured to:
receive, from the BS, an indication that the CC and the one or more other CCs are included in the CC group; and
identify the CC group based at least in part on the indication that the CC and the one or more other CCs are included in the CC group.
40. The UE of claim 28, wherein the one or more processors, when detecting the beam failure associated with the CC, are configured to:
detect the beam failure based at least in part on a beam failure detection reference signal (BFD-RS) transmitted from the BS.
41. A base station (BS), comprising:
a memory; and
one or more processors communicatively coupled to the memory, the one or more processors configured to:
transmit, to a user equipment (UE), a beam failure detection reference signal (BFD-RS) associated with a component carrier (CC) of a plurality of CCs that are aggregated; and
receive, from the UE and based at least in part on transmitting the BFD-RS, a beam failure recovery request (BFRQ) communication associated with a CC group in which the CC and one or more other CCs, of the plurality of CCs, are included.

42. The BS of claim 41, wherein the BFRQ communication includes an explicit or implicit indication of a CC group index associated with the CC group.
43. The BS of claim 42, wherein the implicit indication of the CC group index comprises at least one of:
- an indication of a CC index associated with the CC, or
 - an indication of another CC index associated with another CC included in the one or more other CCs.
44. The BS of claim 41, wherein the one or more processors are further configured to:
- transmit, to the UE and based at least in part on receiving the BFRQ communication, a scheduling order that indicates a time domain resource and a frequency domain resource that are for reporting an explicit indication of a CC group index associated with the CC group; and
 - receive, from the UE and based at least in part on transmitting the scheduling order, a reporting communication that includes the explicit indication of the CC group index.
45. The BS of claim 41, wherein the one or more processors are further configured to:
- receive, from the UE and based at least in part on a dynamic reporting rule:
 - an explicit indication of a CC group index associated with the CC group, or
 - an implicit indication of the CC group index.
46. The BS of claim 45, wherein the one or more processors are further configured to:
- transmit, to the UE, information identifying the dynamic reporting rule,
 - wherein the information identifying the dynamic reporting rule indicates a time domain resource and a frequency domain resource for transmitting the BFRQ communication; and
 - wherein the one or more processors, when receiving the implicit indication of the CC group index, are configured to:
 - receive the BFRQ communication in the time domain resource and the frequency domain resource.
47. The BS of claim 45, wherein the dynamic reporting rule indicates a CC group quantity threshold; and
- wherein the one or more processors, when receiving the implicit indication of the CC group index, are configured to:
 - receive the implicit indication of the CC group index based at least in part on a quantity of CC groups, configured for the plurality of CCs, not satisfying the CC group quantity threshold.

48. The BS of claim 45, wherein the dynamic reporting rule indicates a CC group quantity threshold; and

wherein the one or more processors, when receiving the explicit indication of the CC group index, are configured to:

receive the explicit indication of the CC group index based at least in part on a quantity of CC groups, configured for the plurality of CCs, satisfying the CC group quantity threshold.

49. The BS of claim 41, wherein the CC and the one or more other CCs are quasi-co-located (QCLed).

50. The BS of claim 41, wherein the CC and the one or more other CCs are associated with the BFD-RS.

51. The BS of claim 41, wherein the CC and the one or more other CCs are included in a same frequency band.

52. The BS of claim 41, wherein the CC group includes the plurality of CCs;
wherein the BFRQ communication associated with the CC group does not include an indication of a CC index or CC group index; and

wherein the one or more processors are further configured to:

determine that the BFRQ communication is associated with the CC group based at least in part on the CC group including the plurality of CCs.

53. The BS of claim 41, wherein the one or more processors are further configured to:
receive one or more measurement reports associated with the CC and the one or more other CCs;

group, based at least in part on the one or more measurement reports, the CC and the one or more other CCs into the CC group; and

transmit, to the UE, an indication that the CC group includes the CC and the one or more other CCs.