

CLAIMS

1. A method of wireless communication, comprising:
receiving, by a user equipment (UE) from a base station, a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC in the group of CCs has multiple SRS resource sets configured for the UE;
for each CC in the group of CCs:
selecting, by the UE, all SRS resource sets configured for antenna switching based on the CC having multiple SRS resource sets configured, and
selecting, by the UE, one SRS resource set based on the CC having only the one SRS resource set configured; and
transmitting, by the UE to the base station, one or more SRS transmissions on each CC of the group of CCs using the selected SRS resource sets.
2. The method of claim 1, wherein at least one SRS resource set configured for antenna switching is selected.
3. The method of claim 2, wherein two SRS resource sets configured for antenna switching are selected.
4. The method of claim 1, wherein the receiving the trigger for aperiodic SRS transmission for the group of CCs includes:
receiving a group common downlink control information (DCI) message.
5. The method of claim 4, wherein the group common DCI message comprises a DCI format 2_3 message.
6. The method of claim 1, wherein the transmitting includes:
transmitting, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

7. The method of claim 6, wherein the transmitting according to the predetermined sequence includes:

transmitting, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

8. A method of wireless communication, comprising:

transmitting, by a base station to a user equipment (UE), a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC has multiple SRS resource sets configured for the UE; and

receiving, by the base station from the UE, one or more SRS transmissions, wherein, for each CC in the group of CCs:

the one or more SRS transmissions are received using all SRS resource sets configured for antenna switching, the all SRS resource sets configured for antenna switching being selected based on the CC having multiple SRS resource sets configured, and

the one or more SRS transmissions are received using one SRS resource set selected based on the CC having only the one SRS resource set configured.

9. The method of claim 8, wherein receiving the one or more SRS transmissions includes:

receiving the one or more SRS transmissions using at least one SRS resource set configured for antenna switching.

10. The method of claim 9, wherein receiving the one or more SRS transmissions includes:

receiving the one or more SRS transmissions using two SRS resource sets configured for antenna switching.

11. The method of claim 8, wherein the transmitting the trigger for the aperiodic SRS transmission for the group of CCs includes:

transmitting a group common downlink control information (DCI) message.

12. The method of claim 11, wherein the group common DCI message comprises a DCI format 2_3 message.

13. The method of claim 8, wherein the receiving includes:

receiving, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

14. The method of claim 13, wherein the receiving according to the predetermined sequence includes:

receiving, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

15. An apparatus for wireless communication, comprising:

means for receiving, by a user equipment (UE) from a base station, a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC in the group of CCs has multiple SRS resource sets configured for the UE;

means for selecting, by the UE, for each CC in the group of CCs:

all SRS resource sets configured for antenna switching based on the CC having multiple SRS resource sets configured, and

one SRS resource set based on the CC having only the one SRS resource set configured; and

means for transmitting, by the UE to the base station, one or more SRS transmissions on each CC of the group of CCs using the selected SRS resource sets.

16. The apparatus of claim 15, wherein the means for selecting includes:

means for selecting at least one SRS resource set configured for antenna switching.

17. The apparatus of claim 16, wherein the means for selecting includes:

means for selecting for two SRS resource sets configured for antenna switching.

18. The apparatus of claim 15, wherein the means for receiving the trigger for aperiodic SRS transmission for the group of CCs includes:

means for receiving a group common downlink control information (DCI) message.

19. The apparatus of claim 18, wherein the group common DCI message comprises a DCI format 2_3 message.

20. The apparatus of claim 15, wherein the means for transmitting includes:
means for transmitting, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

21. The apparatus of claim 20, wherein the means for transmitting according to the predetermined sequence includes:
means for transmitting, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

22. An apparatus for wireless communication, comprising:
means for transmitting, by a base station to a user equipment (UE), a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC has multiple SRS resource sets configured for the UE; and
means for receiving, by the base station from the UE, one or more SRS transmissions, wherein, for each CC in the group of CCs:
the one or more SRS transmissions are received using all SRS resource sets configured for antenna switching, the all SRS resource sets configured for antenna switching being selected based on the CC having multiple SRS resource sets configured, and
the one or more SRS transmissions are received using one SRS resource set selected based on the CC having only the one SRS resource set configured.

23. The apparatus of claim 22, wherein the means for receiving includes:
means for receiving the one or more SRS transmissions using at least one SRS resource set configured for antenna switching.

24. The apparatus of claim 23, wherein the means for receiving includes:
means for receiving the one or more SRS transmissions using two SRS resource sets configured for antenna switching.

25. The method of claim 22, wherein the means for transmitting the trigger for the aperiodic SRS transmission for the group of CCs includes:

means for transmitting a group common downlink control information (DCI) message.

26. The apparatus of claim 25, wherein the group common DCI message comprises a DCI format 2_3 message.

27. The apparatus of claim 22, wherein the means for receiving includes:

means for receiving, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

28. The apparatus of claim 27, wherein the receiving according to the predetermined sequence includes:

receiving one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

29. An apparatus for wireless communication, comprising:

at least one processor;

a transceiver; and

at least one memory coupled to the at least one processor, wherein the at least one processor is configured to:

receive, by a user equipment (UE) from a base station via the transceiver, a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC in the group of CCs has multiple SRS resource sets configured for the UE;

select, by the UE, for each CC in the group of CCs:

all SRS resource sets configured for antenna switching based on the CC having multiple SRS resource sets configured, and

one SRS resource set based on the CC having only the one SRS resource set configured; and

transmit, by the UE to the base station via the transceiver, one or more SRS transmissions on each CC of the group of CCs using the selected SRS resource sets.

30. The apparatus of claim 29, wherein the at least one processor is configured to select at least one SRS resource set configured for antenna switching.

31. The apparatus of claim 30, wherein the at least one processor is configured to select two SRS resource sets configured for antenna switching.

32. The apparatus of claim 29, wherein the at least one processor is configured to receive at least in part by:
receiving a group common downlink control information (DCI) message.

33. The apparatus of claim 32, wherein the group common DCI message comprises a DCI format 2_3 message.

34. The apparatus of claim 29, wherein the at least one processor is configured to transmit at least in part by:
transmitting, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

35. The apparatus of claim 34, wherein the at least one processor is configured to transmit according to the predetermined sequence at least in part by:
transmitting, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

36. An apparatus for wireless communication, comprising:
at least one processor;
a transceiver; and
at least one memory coupled to the at least one processor, wherein the at least one processor is configured to:
transmit, by a base station to a user equipment (UE) via the transceiver, a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group

of CCs comprising at least two CCs, wherein at least one CC has multiple SRS resource sets configured for the UE; and

receive, by the base station from the UE via the transceiver, one or more SRS transmissions, wherein, for each CC in the group of CCs:

the one or more SRS transmissions are received using all SRS resource sets configured for antenna switching, the all SRS resource sets configured for antenna switching being selected based on the CC having multiple SRS resource sets configured, and

the one or more SRS transmissions are received using one SRS resource set selected based on the CC having only the one SRS resource set configured.

37. The apparatus of claim 36, wherein the at least one processor is configured to receive at least in part by:

receiving the one or more SRS transmissions using at least one SRS resource set configured for antenna switching.

38. The apparatus of claim 37, wherein the at least one processor is configured to receive at least in part by:

receiving the one or more SRS transmissions using two SRS resource sets configured for antenna switching.

39. The apparatus of claim 36, wherein the at least one processor is configured to transmit the trigger for the aperiodic SRS transmission for the group of CCs at least in part by:

transmitting a group common downlink control information (DCI) message.

40. The apparatus of claim 39, wherein the group common DCI message comprises a DCI format 2_3.

41. The apparatus of claim 36, wherein the at least one processor is configured to receive at least in part by:

receiving, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

42. The apparatus of claim 41, wherein the at least one processor is configured to receive according to the predetermined sequence at least in part by:
receiving, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

43. A non-transitory computer-readable medium having instructions recorded thereon that, when enacted by one or more computer processors, cause the one or more computer processors to:
receive, by a user equipment (UE) from a base station, a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC in the group of CCs has multiple SRS resource sets configured for the UE;
for each CC in the group of CCs:
select, by the UE, all SRS resource sets configured for antenna switching based on the CC having multiple SRS resource sets configured, and
select, by the UE, one SRS resource set based on the CC having only the one SRS resource set configured; and
transmit, by the UE to the base station, one or more SRS transmissions on each CC of the group of CCs using the selected SRS resource sets.

44. The non-transitory computer-readable medium of claim 43, wherein the instructions cause the one or more computer processors to select at least one SRS resource set configured for antenna switching.

45. The non-transitory computer-readable medium of claim 44, wherein the instructions cause the one or more computer processors to select two SRS resource sets configured for antenna switching.

46. The non-transitory computer-readable medium of claim 43, wherein the instructions cause the one or more computer processors to receive at least in part by:
receiving a group common downlink control information (DCI) message.

47. The non-transitory computer-readable medium of claim 46, wherein the group common DCI message comprises a DCI format 2_3 message.

48. The non-transitory computer-readable medium of claim 43, wherein the instructions cause the one or more computer processors to transmit at least in part by:
transmitting, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

49. The non-transitory computer-readable medium of claim 48, wherein the instructions cause the one or more computer processors to transmit according to the predetermined sequence at least in part by:
transmitting, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.

50. A non-transitory computer-readable medium having instructions recorded thereon that, when enacted by one or more computer processors, cause the one or more computer processors to:
transmit, by a base station to a user equipment (UE), a trigger for aperiodic sounding reference signal (SRS) transmission for a group of component carriers (CCs), the group of CCs comprising at least two CCs, wherein at least one CC has multiple SRS resource sets configured for the UE;
and
receive, by the base station from the UE, one or more SRS transmissions, wherein, for each CC in the group of CCs:
the one or more SRS transmissions are received using all SRS resource sets configured for antenna switching, the all SRS resource sets configured for antenna switching being selected based on the CC having multiple SRS resource sets configured, and
the one or more SRS transmissions are received using one SRS resource set selected based on the CC having on the one SRS resource set configured.

51. The non-transitory computer-readable medium of claim 50, wherein the instructions cause the one or more computer processors to receive the one or more SRS transmissions at least in part by:

receiving the one or more SRS transmissions using at least one SRS resource set configured for antenna switching.

52. The non-transitory computer-readable medium of claim 51, wherein the instructions cause the one or more computer processors to receive one or more SRS transmissions at least in part by:

receiving the one or more SRS transmissions using two all SRS resource sets configured for antenna switching.

53. The non-transitory computer-readable medium of claim 50, wherein the instructions cause the one or more computer processors to transmit the trigger for the aperiodic SRS transmission for the group of CCs at least in part by:

transmitting a group common downlink control information (DCI) message.

54. The non-transitory computer-readable medium of claim 53, wherein the group common DCI message comprises a DCI format 2_3 message.

55. The non-transitory computer-readable medium of claim 50, wherein the instructions cause the one or more computer processors to receive one or more SRS transmissions at least in part by:

receiving, according to a predetermined sequence, the one or more SRS transmissions using the selected SRS resource sets.

56. The non-transitory computer-readable medium of claim 55, wherein the instructions cause the one or more computer processors to receive one or more SRS transmissions according to the predetermined sequence at least in part by:

receiving, one CC at a time in ascending CC index order, the one or more SRS transmissions using the selected SRS resource sets in ascending SRS resource set index order.