

CLAIMS

1. — ~~A method of communication for an apparatus~~ a base station, comprising:
~~identifying a cell~~ determining that provides a serving cell for a user equipment (UE) is
to supply timing for the UE to use to measure a channel state information-reference signal
(CSI-RS); and
~~sending an indication of the identified cell to a user equipment (UE).~~
2. — ~~The method of claim 1, wherein the identified cell comprises a serving cell for~~
~~the UE.~~
3. — ~~The method of claim 2, wherein the CSI-RS is transmitted by~~ determining that
a neighbor cell of the serving cell;
4. — ~~The method of claim 1, wherein the identified cell comprises a neighbor cell of~~
~~a serving cell for the UE.~~
5. — ~~The method of claim 4, wherein the CSI-RS is transmitted by the neighbor cell.~~
6. — ~~The method of claim 1, wherein:~~
~~the method further includes determining~~ is to transmit the CSI-RS; determining a
timing difference between the serving cell and the neighbor cell; as a result of determining
that the neighbor cell of the serving cell is to transmit the CSI-RS, sending to the neighbor
cell an indication of the timing difference, wherein the timing difference comprises a symbol
timing difference; generating a CSI-RS configuration for the CSI-RS;
~~the CSI-RS configuration includes the indication of~~ based on the determining that the
identified serving cell for the UE is to supply the timing for the UE to use to measure the CSI-
RS and the determining that the neighbor cell of the serving cell; ~~and~~
~~the sending of the indication is to the UE comprises sending~~ transmit the CSI-RS
configuration to the UE.
7. — ~~The method of claim 6, wherein the CSI-RS configuration comprises an indication that~~
~~the UE is to use the timing of the serving cell to measure the CSI-RS; and transmitting the~~
~~CSI-RS configuration comprising the indication to the UE.~~

2. The method of claim 1, wherein the CSI-RS configuration comprises an indication of a sub-carrier spacing of the CSI-RS.

~~8. — 3. The method of claim 6~~1~~, wherein the CSI-RS configuration comprises an indication of a timing difference taking into account a sub-carrier spacing between a serving cell for the UE and a cell that transmits the CSI-RS.~~

~~9. — The method of claim 6, further comprising:
determining a timing difference between a serving cell for the UE and a cell that transmits the CSI-RS,
wherein the determination of the CSI-RS configuration is based on the timing difference.~~

~~10. — The method of claim 9, wherein the timing difference comprises a symbol timing difference.~~

~~11. — The method of claim 9, wherein the timing difference comprises a slot timing difference, a mini-slot timing difference, a system frame number timing difference, or any combination thereof.~~

~~12. — 4. The method of claim 1, wherein the determination of the timing difference comprises receiving an indication of the timing difference from the UE.~~

~~13. — 5. The method of claim 1~~4~~, further comprising:
sending a request to measure the timing difference to the UE.~~

~~14. — 6. The method of claim 1, wherein the determination of the timing difference comprises:~~

~~receiving a first indication of the timing difference from the UE and at least one second indication of the timing difference from at least one other UE; and
generating an estimate of the timing difference based on the first indication of the timing difference and the at least one second indication of the timing difference.~~

~~15. — An apparatus~~ 7. A base station for communication comprising:

~~a memory device; and~~

~~a processing circuit coupled to the memory device and configured to:~~

~~identify~~ determine that a serving cell that provides for a user equipment (UE) is to supply timing for the UE to use to measure a channel state information-reference signal (CSI-RS); and

~~send an indication of the identified cell to a user equipment (UE).~~

~~16. — The apparatus of claim 15, wherein the identified cell comprises a serving cell for the UE.~~

~~17. — The apparatus of claim 16, wherein the CSI-RS is transmitted by~~ determine that a neighbor cell of the serving cell;

~~18. — The apparatus of claim 15, wherein the identified cell comprises a neighbor cell of a serving cell for the UE.~~

~~19. — The apparatus of claim 18, wherein the CSI-RS is transmitted by the neighbor cell.~~

~~20. — The apparatus of claim 15, wherein:~~
~~the processing circuit is further configured to determine a CSI-RS configuration for the CSI-RS;~~
~~the CSI-RS configuration includes the indication of the identified cell; and~~
~~the sending of the indication to the UE comprises sending the CSI-RS configuration to the UE.~~

~~21. — The apparatus of claim 20, wherein the CSI-RS configuration comprises an indication of a sub-carrier spacing of the CSI-RS.~~

~~22. — The apparatus of claim 20, wherein the CSI-RS configuration comprises an indication of~~ transmit the CSI-RS; determine a timing difference taking into account a sub-carrier spacing between a ~~the serving cell for the UE and a~~ the neighbor cell; as a result of determining that transmits the neighbor cell of the serving cell is to transmit the CSI-RS.

23. — ~~The apparatus of claim 15, wherein:~~

~~the processing circuit is further configured to determine a, send to the neighbor cell an indication of the timing difference between a serving cell for the UE and a cell that transmits the CSI-RS; and~~

~~the determination of the CSI-RS configuration is based on the, wherein the timing difference.~~

24. — ~~The apparatus of claim 23, wherein the determination of the comprises a symbol timing difference comprises receiving an indication of the; generate a CSI-RS configuration for the CSI-RS based on the determination that the serving cell for the UE is to supply the timing difference from for the UE to use to measure the CSI-RS and the determination that the neighbor cell of the serving cell is to transmit the CSI-RS, wherein the CSI-RS configuration comprises an indication that the UE is to use the timing of the serving cell to measure the CSI-RS; and transmit the CSI-RS configuration comprising the indication to the UE.~~

25. — ~~The apparatus~~8. A method of claim 15, wherein the processing circuit is further configured to:

~~send a request to measure the timing difference to the UE.~~

26. — ~~An apparatus for communication comprising:~~

~~means for identifying a cell that provides timing for a channel state information-reference signal (CSI-RS); and~~

~~means for sending an indication of the identified cell to for a user equipment (UE).~~

27. — ~~The apparatus of claim 26, wherein:~~

~~the apparatus further comprises means for determining a CSI-RS configuration for the CSI-RS;~~

~~the CSI-RS configuration includes the indication of the identified cell; and~~

~~the sending of the indication to the UE comprises sending the CSI-RS configuration to the UE.~~

28. — ~~The apparatus of claim 26, wherein:~~

~~the apparatus further comprises means for~~, comprising: determining a timing difference between a serving cell ~~for~~of the UE and a neighbor cell that transmitsof the CSI-RS; and

serving cell; sending an indication of the determination of the CSI-RS configuration is based ontiming difference to the serving cell, wherein the timing difference comprises a symbol timing difference.

29. — ~~The apparatus of claim 26, further comprising:~~

~~means for sending a request to measure the timing difference to the UE.~~

30. — ~~A non-transitory computer-readable medium storing computer-executable code, including code to:~~

~~identify a cell that provides timing for;~~ receiving a channel state information-reference signal (CSI-RS); and

~~send an indication of the identified cell)~~ configuration for a CSI-RS to a user equipment (UE).

31. — ~~A method of communication for an apparatus, comprising:~~

~~receiving~~be transmitted by the neighbor cell, wherein the CSI-RS configuration comprises an indication of a cell that provides timing for receiving a channel state information-reference signal (CSI-RS) at a user equipment (UE); and
~~receiving the CSI-RS.~~

32. — ~~The method of claim 31, further comprising:~~

the UE is to use timing of the serving cell to measure the CSI-RS; determining the timing of the indicated cell,serving cell; and using the timing of the serving cell to measure the CSI-RS transmitted by the neighbor cell.

~~wherein the receipt of the CSI-RS is based on the determined timing.~~

33. — 9. ~~The method of claim 31, wherein the indicated cell comprises a serving cell for the UE.~~

34. — ~~The method of claim 33, wherein the CSI-RS is transmitted by a neighbor cell of the serving cell.~~

~~35. — The method of claim 31, wherein the indicated cell comprises a neighbor cell of a serving cell for the UE.~~

~~36. — The method of claim 35, wherein the CSI-RS is transmitted by the neighbor cell.~~

~~37. — The method of claim 31, wherein the receipt of the indication comprises receiving a CSI-RS configuration for the CSI-RS that includes the indication.~~

~~38. — The method of claim 37, further comprising:
decoding the CSI-RS based on the CSI-RS configuration.~~

~~39. — 10. The method of claim 38, wherein the decoding comprises:
_determining a scrambling sequence based on the CSI-RS configuration; and
_decoding the CSI-RS based on the scrambling sequence.~~

~~40. — 11. The method of claim 37, wherein the CSI-RS configuration comprises an indication of a sub-carrier spacing of the CSI-RS.~~

~~41. — 12. The method of claim 37, wherein the CSI-RS configuration comprises an indication of a timing difference taking into account a sub-carrier spacing between a serving cell for the UE and a cell that transmits the CSI-RS.~~

~~42. — The method of claim 37, wherein the CSI-RS configuration is based on a timing difference between a serving cell for the UE and the indicated cell.~~

~~43. — The method of claim 42, further comprising:
determining the timing difference; and
sending an indication of the timing difference to the serving cell.~~

~~44. — The method of claim 31, further comprising:~~

conducting a mobility operation associated with the ~~indicated~~neighbor cell based on the CSI-RS.

~~45. — An apparatus for communication~~13. A user equipment, comprising:

~~_ a memory device; and~~

~~_ a processing circuit coupled to the memory device and configured to:~~

~~receive an indication of a cell that provides timing for receiving a channel state information reference signal (CSI-RS) at a user equipment (UE); and~~

~~receive the CSI-RS.~~

~~46. — The apparatus of claim 45, wherein:~~

~~the processing circuit is further configured to determine the timing of the indicated cell; and~~

~~the receipt of the CSI-RS is based on the determined timing.~~

~~47. — The apparatus of claim 45, wherein the receipt of the indication comprises~~

~~receiving a CSI-RS configuration for the CSI-RS that includes the indication.~~

~~48. — The apparatus of claim 47, wherein the processing circuit is further configured~~

~~to:~~

~~decode the CSI-RS based on the CSI-RS configuration.~~

~~49. — The apparatus of claim 47, wherein the CSI-RS configuration is based on a~~

~~timing difference between a serving cell for the UE and the indicated cell.~~

~~50. — The apparatus of claim 49, wherein the processing circuit is further configured~~

~~to:~~

~~_ determine the timing difference; and~~

~~send an indication of the timing difference to the serving cell.~~

~~51. — The apparatus of claim 45, wherein the processing circuit is further configured~~

~~to:~~

~~conduct a mobility operation associated with the indicated cell based on the CSI-RS.~~

52. — ~~An apparatus for communication comprising:
means for receiving an indication of a cell that provides timing for receiving a channel state information reference signal (CSI-RS) at a user equipment (UE); and
means for receiving the CSI-RS.~~

53. — ~~The apparatus of claim 52, wherein:
the apparatus further comprises means for determining the timing of the indicated cell;
and
the receipt of the CSI-RS is based on the determined timing.~~

54. — ~~The apparatus of claim 52, wherein the receipt of the indication comprises
receiving a CSI-RS configuration for the CSI-RS that includes the indication.~~

55. — ~~The apparatus of claim 54, further comprising:
means for decoding the CSI-RS based on the CSI-RS configuration.~~

56. — ~~The apparatus of claim 54, wherein the CSI-RS configuration is based on a
timing difference between a serving cell of the UE and a neighbor cell of the serving cell for
the UE and the indicated cell.~~

57. — ~~The apparatus of claim 56, further comprising:
means for determining the timing difference; and
means for sending; send an indication of the timing difference to the serving cell, wherein the
timing difference comprises a symbol timing difference; receive a channel state information-
reference signal (CSI-RS) configuration for a CSI-RS to be transmitted by a neighbor cell of a
serving cell for the UE, wherein the CSI-RS configuration comprises an indication that the
UE is to use timing of the serving cell to measure the CSI-RS; determine the timing of the
serving cell; and use the timing of the serving cell to measure the CSI-RS transmitted by the
neighbor cell.~~

58. — ~~14. The apparatus~~method of claim 52~~1~~, further comprising:
means for conducting a mobility operation associated with the indicated cell based on
the sending CSI-RS.

59. ~~A non-transitory computer-readable medium storing computer-executable code, including code to:~~

~~receive an indication of a cell that provides timing for receiving a channel state information-reference signal (CSI-RS) at a user equipment (UE); and
receive to the CSI-RS neighbor cell.~~