CLAIMS

1. A method of wireless communication for a user equipment (UE), the method comprising: sending, to a base station in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; performing, based on the request, the beam tracking with the base station to determine a communication beam, wherein the performing the beam tracking comprises: receiving a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and sending, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicating with the base station on the communication beam in the second carrier frequency based on the beam tracking.

2. The method of claim 1, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

3. The method of claim 1, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

4. The method of claim 1, wherein the request indicates a beam index associated with the at least one first beam.

5. The method of claim 4, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

6. The method of claim 1, wherein at least one second reference signal of the plurality of reference signals is received on at least one second beam of the plurality of beams based on the first indication of the first beam index.

7. The method of claim 1, further comprising: detecting a radio link failure associated with communication with the base station on a serving beam in the second carrier frequency, wherein the sending the request is based on the radio link failure.

8. The method of claim 7, wherein the detecting the radio link failure comprises: measuring a value associated with the serving beam, wherein the value comprises at least one of a signal-to-noise ratio (SNR), a signal-to-interference-plus-noise ratio (SINR), a received signal strength indicator (RSSI), a reference signal received quality, or a reference signal received power (RSRP); comparing the value to a threshold; and detecting the radio link failure based on the

comparison of the value to the threshold.

9. A method of wireless communication for a base station, the method comprising: receiving, from a user equipment (UE) in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; performing, based on the request, the beam tracking with the UE to determine a communication beam, wherein the performing the beam tracking comprises: sending a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receiving, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicating with the UE on the communication beam in the second carrier frequency based on the beam tracking.

10. The method of claim 9, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

11. The method of claim 9, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

12. The method of claim 9, wherein the request indicates a beam index associated with the at least one first beam.

13. The method of claim 12, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

14. The method of claim 9, wherein at least one second reference signal of the plurality of reference signals is sent on at least one second beam of the plurality of beams based on the first indication of the first beam index.

15. The method of claim 9, wherein the request is based on a radio link failure between the base station and the UE on a serving beam.

16. A method of wireless communication for a user equipment (UE), the method comprising: receiving, from a base station in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; performing, based on the instruction, the beam tracking with the base station to determine a communication beam, wherein the performing the beam tracking comprises: receiving a plurality of reference signals from the base station, wherein each

of the plurality of reference signals is received via a respective beam of a plurality of beams, and sending, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicating with the base station on the communication beam in the second carrier frequency based on the beam tracking.

17. The method of claim 16, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

18. The method of claim 16, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

19. The method of claim 16, wherein at least one second reference signal of the plurality of reference signals is received on at least one second beam of the plurality of beams based on the first indication of the first beam index.

20. A method of wireless communication for a base station, the method comprising: sending, to a user equipment (UE) in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; performing, based on the instruction, the beam tracking with the UE to determine a communication beam, wherein the performing the beam tracking comprises: sending a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receiving, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicating with the UE on the communication beam in the second carrier frequency based on the beam tracking.

21. The method of claim 20, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

22. The method of claim 20, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

23. The method of claim 20, wherein at least one second reference signal of the plurality of reference signals is sent on at least one second beam of the plurality of beams based on the first indication of the first beam index.

24. An apparatus for wireless communication included in a user equipment (UE), the apparatus comprising: means for sending, to a base station in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; means for performing, based on the request, the beam tracking with the base station to determine a communication beam, wherein the means for performing the beam tracking is configured for: receiving a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and sending, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and means for communicating with the base station on the communication beam in the second carrier frequency based on the beam tracking.

25. The apparatus of claim 24, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

26. The apparatus of claim 24, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

27. The apparatus of claim 24, wherein the request indicates a beam index associated with the at least one first beam.

28. The apparatus of claim 27, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

29. The apparatus of claim 24, wherein at least one second reference signal of the plurality of reference signals is received on at least one second beam of the plurality of beams based on the first indication of the first beam index.

30. The apparatus of claim 24, further comprising: means for detecting a radio link failure associated with communication with the base station on a serving beam in the second carrier frequency, wherein the means for sending the request is configured to send the request based on the radio link failure.

31. The apparatus of claim 30, wherein the means for detecting the radio link failure is configured to: measure a value associated with the serving beam, wherein the value comprises at least one of a signal-to-noise ratio (SNR), a signal-to-interference-plus-noise ratio (SINR), a received signal strength indicator (RSSI), a reference signal received quality, or a reference

signal received power (RSRP); compare the value to a threshold; and detect the radio link failure based on the comparison of the value to the threshold.

32. An apparatus for wireless communication included in a base station, the apparatus comprising: means for receiving, from a user equipment (UE) in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; means for performing, based on the request, the beam tracking with the UE to determine a communication beam, wherein the means for performing the beam tracking is configured for: sending a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receiving, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and means for communicating with the UE on the communication beam in the second carrier frequency based on the beam tracking.

33. The apparatus of claim 32, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

34. The apparatus of claim 32, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

35. The apparatus of claim 32, wherein the request indicates a beam index associated with the at least one first beam.

36. The apparatus of claim 35, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

37. The apparatus of claim 32, wherein at least one second reference signal of the plurality of reference signals is sent on at least one second beam of the plurality of beams based on the first indication of the first beam index.

38. The apparatus of claim 32, wherein the request is based on a radio link failure between the base station and the UE on a serving beam.

39. An apparatus for wireless communication included in a user equipment (UE), the apparatus comprising: means for receiving, from a base station in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; means for performing, based on the instruction, the beam tracking with the base station to determine a communication

beam, wherein the means for performing the beam tracking is configured for: receiving a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and sending, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and means for communicating with the base station on the communication beam in the second carrier frequency based on the beam tracking.

40. The apparatus of claim 39, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

41. The apparatus of claim 39, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

42. The apparatus of claim 39, wherein at least one second reference signal of the plurality of reference signals is received on at least one second beam of the plurality of beams based on the first indication of the first beam index.

43. An apparatus for wireless communication included in a base station, the apparatus comprising: means for sending, to a user equipment (UE) in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; means for performing, based on the instruction, the beam tracking with the UE to determine a communication beam, wherein the means for performing the beam tracking is configured for: sending a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receiving, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and means for communicating with the UE on the communication beam in the second carrier frequency based on the beam tracking.

44. The apparatus of claim 43, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

45. The apparatus of claim 43, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

46. The apparatus of claim 43, wherein at least one second reference signal of the plurality of

reference signals is sent on at least one second beam of the plurality of beams based on the first indication of the first beam index.

47. An apparatus for wireless communication included in a user equipment (UE), the apparatus comprising: a memory; and at least one processor coupled to the memory and configured to: send, to a base station in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the request, the beam tracking with the base station to determine a communication beam, wherein the performance of the beam tracking comprises to: receive a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and send, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the base station on the communication beam in the second carrier frequency based on the beam tracking.

48. The apparatus of claim 47, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

49. The apparatus of claim 47, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

50. The apparatus of claim 47, wherein the request indicates a beam index associated with the at least one first beam.

51. The apparatus of claim 50, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

52. The apparatus of claim 47, wherein the at least one processor is further configured to: detect a radio link failure associated with communication with the base station on a serving beam in the second carrier frequency, wherein the request is sent based on the radio link failure.

53. The apparatus of claim 47, wherein the detection of the radio link failure comprises to: measure a value associated with the serving beam, wherein the value comprises at least one of a signal-to-noise ratio (SNR), a signal-to-interference-plus-noise ratio (SINR), a received signal strength indicator (RSSI), a reference signal received quality, or a reference signal received power (RSRP); compare the value to a threshold; and detect the radio link failure based on the comparison of the value to the threshold.

54. An apparatus for wireless communication included in a base station, the apparatus comprising: a memory; and at least one processor coupled to the memory and configured to: receive, from a user equipment (UE) in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the request, the beam tracking with the UE to determine a communication beam, wherein the performance of the beam tracking comprises to: send a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receive, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the UE on the communication beam in the second carrier frequency based on the beam tracking.

55. The apparatus of claim 54, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

56. The apparatus of claim 54, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

57. The apparatus of claim 54, wherein the request indicates a beam index associated with the at least one first beam.

58. The apparatus of claim 57, wherein the request indicates the beam index associated with the at least one first beam based on one or more resources associated with a random access channel (RACH).

59. The apparatus of claim 54, wherein the request is based on a radio link failure between the base station and the UE on a serving beam.

60. An apparatus for wireless communication included in a user equipment (UE), the apparatus comprising: a memory; and at least one processor coupled to the memory and configured to: receive, from a base station in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the instruction, the beam tracking with the base station to determine a communication beam, wherein the performance of the beam tracking comprises to: receive a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and send, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each

measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the base station on the communication beam in the second carrier frequency based on the beam tracking.

61. The apparatus of claim 60, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

62. The apparatus of claim 60, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

63. An apparatus for wireless communication included in a base station, the apparatus comprising: a memory; and at least one processor coupled to the memory and configured to: send, to a user equipment (UE) in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the instruction, the beam tracking with the UE to determine a communication beam, wherein the performance of the beam tracking comprises to: send a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receive, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the UE on the communication beam in the second carrier frequency based on the beam tracking.

64. The apparatus of claim 63, wherein the first carrier frequency comprises a sub-6 gigahertz (GHz) band and the second carrier frequency comprises a millimeter wave (mmW) band.

65. The apparatus of claim 63, wherein the first carrier frequency is associated with a first radio access technology (RAT) and the second carrier frequency is associated with a second RAT that is different from the first RAT.

66. A non-transitory, computer-readable medium storing computer-executable code for wireless communication by a user equipment (UE), comprising code to: send, to a base station in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the request, the beam tracking with the base station to determine a communication beam, wherein the performance of the beam tracking comprises to: receive a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and send, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with

receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the base station on the communication beam in the second carrier frequency based on the beam tracking.

67. A non-transitory, computer-readable medium storing computer-executable code for wireless communication by a base station, comprising code to: receive, from a user equipment (UE) in a first carrier frequency, a request associated with performance of beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the request, the beam tracking with the UE to determine a communication beam, wherein the performance of the beam tracking comprises to: send a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receive, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the UE on the communication beam in the second carrier frequency based on the beam tracking.

68. A non-transitory, computer-readable medium storing computer-executable code for wireless communication by a user equipment (UE), comprising code to: receive, from a base station in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the instruction, the beam tracking with the base station to determine a communication beam, wherein the performance of the beam tracking comprises to: receive a plurality of reference signals from the base station, wherein each of the plurality of reference signals is received via a respective beam of a plurality of beams, and send, to the base station in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams based on a plurality of measurements associated with receiving the plurality of reference signals, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the base station on the communication beam in the second carrier frequency based on the beam tracking.

69. A non-transitory, computer-readable medium storing computer-executable code for wireless communication by a base station, comprising code to: send, to a user equipment (UE) in a first carrier frequency, a message indicating an instruction to perform beam tracking between the base station and the UE in a second carrier frequency that is different from the first carrier frequency; perform, based on the instruction, the beam tracking with the UE to determine a communication beam, wherein the performance of the beam tracking comprises to: send a plurality of reference signals, wherein each of the plurality of reference signals is sent via a respective beam of a plurality of beams, and receive, from the UE in the second carrier frequency, information indicating at least one beam index corresponding to at least one beam of the plurality of beams

based on a plurality of measurements associated with receiving the plurality of reference signals by the UE, wherein each measurement of the plurality of measurements is associated with a respective beam of the plurality of beams; and communicate with the UE on the communication beam in the second carrier frequency based on the beam tracking.