WHAT IS CLAIMED IS:

1. An apparatus comprising:

at least one processor; and

at least one memory including computer program code, the at least one memory and the computer program code being configured to, with the at least one processor, cause the apparatus to perform

receiving configuration information associated with a plurality of pre-configured measurement gap patterns,

receiving index information for configuring at least one measurement gap pattern of a bandwidth part, and

configuring the at least one measurement gap pattern of the bandwidth part based on at least one of the configuration information and the index information.

2. The apparatus of claim 1 wherein the configuration information comprises a plurality of information items corresponding to the plurality of pre-configured measurement gap patterns, an information item of the plurality of information items comprising at least one of an index and a parameter configuration associated with a corresponding pre-configured measurement gap pattern.

3. The apparatus of claim 2 wherein the index of the corresponding pre-configured measurement gap pattern is a predetermined identifier or depends on an order of the corresponding pre-configured measurement gap pattern in the plurality of pre-configured measurement gap patterns.

4. The apparatus of claim 2 or 3 wherein the index information comprises at least one index value for the at least one measurement gap pattern to be applied to the bandwidth part.

5. The apparatus of claim 1 wherein the configuration information comprises a plurality of information items for a measurement gap pattern parameter among a plurality of measurement

gap pattern parameters associated with the plurality of measurement gap patterns, an information item of the plurality of information items for the measurement gap pattern parameter comprising a value of the measurement gap pattern parameter and an index corresponding to the value of the measurement gap pattern parameter.

6. The apparatus of claim 5 wherein the index information comprises at least one index value associated with at least one measurement gap pattern parameter among the plurality of measurement gap pattern parameters.

7. The apparatus of any of claims 2 to 6 wherein two or more indexes in the configuration information share a predetermined identifier.

8. The apparatus of any of claims 1 to 7 wherein the configuration information comprises an indication of at least one default pre-configured measurement gap pattern.

9. The apparatus of claim 8 wherein the index information comprises at least one of:

information for indicating to apply the at least one default pre-configured measurement gap pattern or at least one previous measurement gap pattern to the bandwidth part; and

information for indicating whether to apply the at least one default pre-configured measurement gap pattern to the bandwidth part.

10. The apparatus of any of claims 1 to 9 wherein the index information comprises at least one predetermined index or at least one empty index for indicating to deactivate at least one activated measurement gap pattern of the bandwidth part.

11. The apparatus of any of claims 1 to 10 wherein the configuration information is received via at least one first downlink radio resource control signaling.

12. The apparatus of any of claims 1 to 11 wherein the index information is received via downlink control information or at least one second downlink radio resource control signaling.

13. The apparatus of claim 12 wherein the index information is received via downlink control information or at least one second downlink radio resource control signaling for a bandwidth part switch, a delay of completing the bandwidth part switch including both a pre-defined bandwidth part switch time and a measurement gap pattern application time.

14. The apparatus of any of claims 1 to 13 wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to further perform:

receiving another configuration information associated with another plurality of pre-configured measurement gap patterns; and

updating the configuration information based on the another configuration information.

15. The apparatus of any of claims 1 to 14 wherein the plurality of pre-configured measurement gap patterns are associated with a plurality of bandwidth parts.

16. A method comprising:

receiving configuration information associated with a plurality of pre-configured measurement gap patterns;

receiving index information for configuring at least one measurement gap pattern of a bandwidth part; and

configuring the at least one measurement gap pattern of the bandwidth part based on at least one of the configuration information and the index information.

17. The method of claim 16 wherein the configuration information comprises a plurality of information items corresponding to the plurality of pre-configured measurement gap patterns, an information item of the plurality of information items comprising at least one of an index and a parameter configuration associated with a corresponding pre-configured measurement gap pattern.

18. The method of claim 17 wherein the index of the corresponding pre-configured measurement gap pattern is a predetermined identifier or depends on an order of the corresponding pre-configured measurement gap pattern in the plurality of pre-configured measurement gap patterns.

19. The method of claim 17 or 18 wherein the index information comprises at least one index value for the at least one measurement gap pattern to be applied to the bandwidth part.

20. The method of claim 16 wherein the configuration information comprises a plurality of information items for a measurement gap pattern parameter among a plurality of measurement gap pattern parameters associated with the plurality of measurement gap patterns, an information item of the plurality of information items for the measurement gap pattern parameter comprising a value of the measurement gap pattern parameter and an index corresponding to the value of the measurement gap pattern parameter.

21. The method of claim 20 wherein the index information comprises at least one index value associated with at least one measurement gap pattern parameter among the plurality of measurement gap pattern parameters.

22. The method of any of claims 17 to 21 wherein two or more indexes in the configuration information share a predetermined identifier.

23. The method of any of claims 16 to 22 wherein the configuration information comprises an indication of at least one default pre-configured measurement gap pattern.

24. The method of claim 23 wherein the index information comprises information for indicating to apply the at least one default pre-configured measurement gap pattern or at least one previous measurement gap pattern to the bandwidth part.

25. The method of any of claims 16 to 24 wherein the index information comprises at

least one predetermined index or at least one empty index for indicating to deactivate at least one activated measurement gap pattern of the bandwidth part.

26. The method of any of claims 16 to 25 wherein the configuration information is received via at least one first downlink radio resource control signaling.

27. The method of any of claims 16 to 26 wherein the index information is received via downlink control information or at least one second downlink radio resource control signaling.

28. The method of claim 27 wherein the index information is received via downlink control information or at least one second downlink radio resource control signaling for a bandwidth part switch, a delay of completing the bandwidth part switch including both a pre-defined bandwidth part switch time and a measurement gap pattern application time.

29. The method of any of claims 16 to 28 further comprising:

receiving another configuration information associated with another plurality of pre-configured measurement gap patterns; and

updating the configuration information based on the another configuration information.

30. The method of any of claims 16 to 29 wherein the plurality of pre-configured measurement gap patterns are associated with a plurality of bandwidth parts.

31. An apparatus comprising:

means for receiving configuration information associated with a plurality of pre-configured measurement gap patterns;

means for receiving index information for configuring at least one measurement gap pattern of a bandwidth part; and

means for configuring the at least one measurement gap pattern of the bandwidth part based on at least one of the configuration information and the index information.

32. A computer readable medium comprising instructions stored thereon for causing an apparatus to perform:

receiving configuration information associated with a plurality of pre-configured measurement gap patterns;

receiving index information for configuring at least one measurement gap pattern of a bandwidth part; and

configuring the at least one measurement gap pattern of the bandwidth part based on at least one of the configuration information and the index information.

33. An apparatus comprising:

at least one processor; and

at least one memory including computer program code, the at least one memory and the computer program code being configured to, with the at least one processor, cause the apparatus to perform

transmitting, to a mobile station, configuration information associated with a plurality of pre-configured measurement gap patterns, and

transmitting, to the mobile station, index information for configuring at least one measurement gap pattern of a bandwidth part.

34. The apparatus of claim 33 wherein the configuration information comprises a plurality of information items corresponding to the plurality of pre-configured measurement gap patterns, an information item of the plurality of information items comprising at least one of an index and a parameter configuration associated with a corresponding pre-configured measurement gap pattern.

35. The apparatus of claim 34 wherein the index of the corresponding pre-configured measurement gap pattern is a predetermined identifier or depends on an order of the corresponding pre-configured measurement gap pattern in the plurality of pre-configured measurement gap patterns.

36. The apparatus of claim 34 or 35 wherein the index information comprises at least one index value for the at least one measurement gap pattern to be applied to the bandwidth part.

37. The apparatus of claim 33 wherein the configuration information comprises a plurality of information items for a measurement gap pattern parameter among a plurality of measurement gap pattern parameters associated with the plurality of measurement gap pattern parameters, an information item of the plurality of information items for the measurement gap pattern parameter comprising a value of the measurement gap pattern parameter and an index corresponding to the value of the measurement gap pattern parameter.

38. The apparatus of claim 37 wherein the index information comprises at least one index value associated with at least one measurement gap pattern parameter among the plurality of measurement gap pattern parameters.

39. The apparatus of any of claims 35 to 38 wherein two or more indexes in the configuration information share a predetermined identifier.

40. The apparatus of any of claims 33 to 39 wherein the configuration information comprises an indication of at least one default pre-configured measurement gap pattern.

41. The apparatus of claim 40 wherein the index information comprises information for indicating to apply the at least one default pre-configured measurement gap pattern or at least one previous measurement gap pattern to the bandwidth part.

42. The apparatus of any of claims 33 to 41 wherein the index information comprises at least one predetermined index or at least one empty index for indicating to deactivate at least one activated measurement gap pattern of the bandwidth part.

43. The apparatus of any of claims 33 to 42 wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus

to further perform:

determining the configuration information based on capability of the mobile station.

44. The apparatus of any of claims 33 to 43 wherein the configuration information is transmitted via at least one first downlink radio resource control signaling.

45. The apparatus of any of claims 33 to 44 wherein the index information is transmitted via downlink control information or at least one second downlink radio resource control signaling.

46. The apparatus of claim 45 wherein the index information is transmitted via downlink control information or at least one second downlink radio resource control signaling for a bandwidth part switch, a delay of completing the bandwidth part switch including both a pre-defined bandwidth part switch time and a measurement gap pattern application time.

47. The apparatus of any of claims 33 to 46 wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to further perform:

receiving, from a network node, another configuration information associated with another plurality of pre-configured measurement gap patterns; and

determining the configuration information based on at least one of the another configuration information and capability of the mobile station.

48. The apparatus of any of claims 33 to 47 wherein the at least one memory and the computer program code are configured to, with the at least one processor, cause the apparatus to further perform:

transmitting the configuration information to a network node.

49. The apparatus of any of claims 33 to 48 wherein the plurality of pre-configured measurement gap patterns are associated with a plurality of bandwidth parts.

50. A method comprising:

transmitting, to a mobile station, configuration information associated with a plurality of pre-configured measurement gap patterns; and

transmitting, to the mobile station, index information for configuring at least one measurement gap pattern of a bandwidth part.

51. The method of claim 50 wherein the configuration information comprises a plurality of information items corresponding to the plurality of pre-configured measurement gap patterns, an information item of the plurality of information items comprising at least one of an index and a parameter configuration associated with a corresponding pre-configured measurement gap pattern.

52. The method of claim 51 wherein the index of the corresponding pre-configured measurement gap pattern is a predetermined identifier or depends on an order of the corresponding pre-configured measurement gap pattern in the plurality of pre-configured measurement gap patterns.

53. The method of claim 51 or 52 wherein the index information comprises at least one index value for the at least one measurement gap pattern to be applied to the bandwidth part.

54. The method of claim 50 wherein the configuration information comprises a plurality of information items for a measurement gap pattern parameter among a plurality of measurement gap pattern parameters associated with the plurality of measurement gap pattern parameters, an information item of the plurality of information items for the measurement gap pattern parameter comprising a value of the measurement gap pattern parameter and an index corresponding to the value of the measurement gap pattern parameter.

55. The method of claim 54 wherein the index information comprises at least one index value associated with at least one measurement gap pattern parameter among the plurality of

measurement gap pattern parameters.

56. The method of any of claims 51 to 54 wherein two or more indexes in the configuration information share a predetermined identifier.

57. The method of any of claims 50 to 56 wherein the configuration information comprises an indication of at least one default pre-configured measurement gap pattern.

58. The method of claim 57 wherein the index information comprises information for indicating to apply the at least one default pre-configured measurement gap pattern or at least one previous measurement gap pattern to the bandwidth part.

59. The method of any of claims 50 to 58 wherein the index information comprises at least one predetermined index or at least one empty index for indicating to deactivate at least one activated measurement gap pattern of the bandwidth part.

60. The method of any of claims 50 to 59 further comprising:

determining the configuration information based on capability of the mobile station.

61. The method of any of claims 50 to 60 wherein the configuration information is transmitted via at least one first downlink radio resource control signaling.

62. The method of any of claims 50 to 61 wherein the index information is transmitted via downlink control information or at least one second downlink radio resource control signaling.

63. The method of claim 62 wherein the index information is transmitted via downlink control information or at least one second downlink radio resource control signaling for a bandwidth part switch, a delay of completing the bandwidth part switch including both a pre-defined bandwidth part switch time and a measurement gap pattern application time.

64. The method of any of claims 50 to 63 further comprising:

receiving another configuration information associated with another plurality of pre-configured measurement gap patterns; and

determining the configuration information based on at least one of the another configuration information and capability of the mobile station.

65. The method of any of claims 50 to 64 further comprising:

transmitting the configuration to a network node.

66. The method of any of claims 50 to 65 wherein the plurality of pre-configured measurement gap patterns are associated with a plurality of bandwidth parts.

67. An apparatus comprising:

means for transmitting, to a mobile station, configuration information associated with a plurality of pre-configured measurement gap patterns; and

means for transmitting, to the mobile station, index information for configuring at least one measurement gap pattern of a bandwidth part.

68. A computer readable medium comprising instructions stored thereon for causing an apparatus to perform:

transmitting, to a mobile station, configuration information associated with a plurality of pre-configured measurement gap patterns; and

transmitting, to the mobile station, index information for configuring at least one measurement gap pattern of a bandwidth part.

CLAIMS

1. An apparatus comprising:

means for receiving, from a network device, configuration information associated with a plurality of pre-configured measurement gap patterns configured for the apparatus;

means for receiving, from the network device and for a bandwidth part, index information for activating or deactivating at least one pre-configured measurement gap pattern from the plurality of pre-configured measurement gap patterns; and

means for activating or deactivating the at least one pre-configured measurement gap pattern for the bandwidth part based on at least the index information.

2. The apparatus of claim 1, wherein the configuration information comprises a plurality of information items corresponding to the plurality of pre-configured measurement gap patterns, an information item of the plurality of information items comprising at least one of an index and a parameter configuration associated with a corresponding pre-configured measurement gap pattern.

3. The apparatus of claim 2, wherein the index of the corresponding pre-configured measurement gap pattern is a predetermined identifier or depends on an order of the corresponding pre-configured measurement gap pattern in the plurality of pre-configured measurement gap patterns.

4. The apparatus of claim 2 or 3, wherein the index information comprises at least one index value for the at least one measurement gap pattern to be applied to the bandwidth part.

5. The apparatus of claim 1, wherein the configuration information comprises a plurality of information items for a measurement gap pattern parameter among a plurality of measurement gap pattern parameters associated with the plurality of measurement gap patterns, an information item of the plurality of information items for the measurement gap pattern parameter comprising a value of the measurement gap pattern parameter and an index corresponding to the value of the measurement gap pattern parameter.

6. The apparatus of claim 5, wherein the index information comprises at least one index value associated with at least one measurement gap pattern parameter among the plurality of measurement gap pattern parameters.

7. The apparatus of any of claims 2 to 6, wherein two or more indexes in the configuration information correspond to a same predetermined identifier.

8. The apparatus of any of claims 1 to 7, wherein the configuration information comprises an indication of at least one default pre-configured measurement gap pattern.

9. The apparatus of claim 8, wherein the index information comprises at least one of:

information for indicating to apply the at least one default pre-configured measurement gap pattern or at least one previous measurement gap pattern to the bandwidth part; and

information for indicating whether to apply the at least one default pre-configured measurement gap pattern to the bandwidth part.

10. The apparatus of any of claims 1 to 9, wherein the index information comprises at least one predetermined index or at least one empty index for indicating to deactivate at least one activated measurement gap pattern of the bandwidth part.

11. The apparatus of any of claims 1 to 10, wherein the apparatus is configured to receive the configuration information via at least one first downlink radio resource control signaling.

12. The apparatus of any of claims 1 to 11, wherein the apparatus is configured to receive the index information via downlink control information or at least one second downlink radio resource control signaling.

13. The apparatus of claim 12, wherein the apparatus is configured to receive the index information i via downlink control information or at least one second downlink radio resource control signaling for a bandwidth part switch, a delay of completing the bandwidth part switch including both a pre-defined bandwidth part switch time and a measurement gap pattern

application time.

14. The apparatus of any of claims 1 to 13, wherein apparatus comprises means for:

receiving another configuration information associated with another plurality of pre-configured measurement gap patterns; and

updating the configuration information based on the another configuration information.

15. The apparatus of any of claims 1 to 14 wherein the plurality of pre-configured measurement gap patterns are associated with a plurality of bandwidth parts.

16. An apparatus comprising:

means for transmitting, to a mobile station, configuration information associated with a plurality of pre-configured measurement gap patterns configured for the mobile station; and

means for transmitting, to the mobile station for a bandwidth part, index information for activating or deactivating at least one pre-configured measurement gap pattern from the plurality of pre-configured measurement gap patterns.