CLAIMS

1. A method for separately configuring sets of frequency resources for a Physical Downlink Control Channel (PDCCH) and a Physical Downlink Sharing Channel (PDSCH), comprising:

configuring a first message and a second message, the first message being configured to indicate a first set of frequency resources with a first associated numerology for the PDCCH, and the second message being configured to indicate a second set of frequency resources with a second associated numerology for the PDSCH

transmitting the first message and the second message;

transmitting the PDCCH in a resource from the first set of frequency resources; and

transmitting the PDSCH in a resource from the second set of frequency resources.

2. The method according to claim 1, wherein the first and second sets of frequency resources are a bandwidth part (BWP) or a control resource set (CORESET) in a BWP.

3. The method according to claim 1 or 2, wherein at least one portion of the first set of frequency resources fails to overlap with the second set of frequency resources, and

wherein a value of the first associated numerology is different from a value of the second associated numerology.

4. The method according to claim 1, wherein the first message is one of System Information (SI), a Radio Resource Control (RRC) signaling, or a broadcasting signaling and the second message is Downlink Control Information (DCI) transmitted in the PDCCH or a following PDCCH.

5. The method according to any one of claims 1-4, wherein each of the first and second associated numerologies is at least one of a Subcarrier Spacing (SCS) and a cyclic prefix (CP).

6. The method according to any one of claims 1-5, wherein the PDCCH contains scheduling information of the PDSCH.

7. A method for receiving a Physical Downlink Control Channel (PDCCH) and a Physical Downlink Sharing Channel (PDSCH), comprising:

receiving the PDCCH, the PDCCH being transmitted in a resource from a first set of frequency resources with a first associated numerology, wherein the first set of frequency resources with the first associated numerology is indicated by a first message for the PDCCH; and

receiving the PDSCH, the PDSCH being transmitted in a resource from a second set of frequency resources with a second associated numerology, wherein the second set of frequency resources with the second associated numerology is indicated by a second message for the PDSCH.

8. The method according to claim 7, wherein the first and second sets of frequency resources are a bandwidth part (BWP) or a control resource set (CORESET) in a BWP.

9. The method according to claim 7 or 8, wherein at least one portion of the first set of frequency resources fails to overlap with the second set of frequency resources.

10. The method according to claim 7 or 8, wherein a value of the first associated numerology is different from a value of the second associated numerology.

11. The method according to claim 7, wherein the first message is one of SI, a RRC signaling, and a broadcasting signaling and the second message is Downlink Control Information (DCI) transmitted in the PDCCH or a following PDCCH.

12. The method according to claim 7, wherein the first message includes a common message and a UE-specific message, the common massage being configured to indicate a common control resource set with an associated numerology for a first PDCCH and the UE-specific message being configured to indicate a UE-specific control resource set with an associated numerology for a second PDCCH, and

wherein the second message is DCI transmitted in the first or second PDCCH,

wherein the first message comes from a previous PDCCH,

wherein the first associated numerology for the PDCCH is the same as that for the previous PDCCH,

wherein each of the first and second messages is one of SI, a RRC signaling, and a broadcasting signaling.

13. The method according to any one of claims 7-12, wherein each of the first and second associated numerologies is at least one of a Subcarrier Spacing (SCS) and a cyclic prefix (CP).

14. The method according to any one of claims 7-13, wherein the PDCCH contains scheduling information of the PDSCH.

15. An apparatus, comprising a memory and a processor, adapted to execute the method of any one of claims 1 to 6.

16. An apparatus, comprising a memory and a processor, adapted to execute the method of any one of claims 7-14.