

CLAIMS

1. A method for channel monitoring, performed by a user equipment, and comprising:
receiving first downlink control information (DCI); and
after bandwidth part (BWP) switching, performing physical downlink control channel (PDCCH) monitoring based on one of a first monitoring mode, a second monitoring mode and a third monitoring mode;
wherein the first DCI comprises information indicating a PDCCH monitoring adaptation behavior, and is received by the user equipment before the BWP switching;
wherein performing the PDCCH monitoring based on the first monitoring mode comprises:
in response to a BWP after the BWP switching being configured with a search space set group, monitoring a default search space set group, before receiving a second DCI; or
in response to the BWP after the BWP switching being configured with no search space set group, monitoring a search space configured on the BWP after the BWP switching, before receiving the second DCI;
wherein the second DCI comprises information indicating the PDCCH monitoring adaptation behavior, and is received by the user equipment after the BWP switching.
2. The method according to claim 1, wherein performing the PDCCH monitoring based on the first monitoring mode comprises:
ignoring the PDCCH monitoring adaptation behavior indicated by the first DCI.
3. The method according to claim 2, wherein performing the PDCCH monitoring based on the first monitoring mode further comprises:
stopping operation of at least one of a search space set group switching timer or a PDCCH skipping timer in response to presence of at least one of the search space set group switching timer or the PDCCH skipping timer in operation and associated to a BWP before the BWP switching.
4. The method according to claim 1, wherein performing the PDCCH monitoring based on the second monitoring mode comprises:
in response to a number of PDCCH skipping durations configured by the BWP before the

BWP switching being same as a number of PDCCH skipping durations configured by the BWP after the BWP switching, and a number of search space sets configured by the BWP before the BWP switching being same as a number of search space sets configured by the BWP after the BWP switching, performing the PDCCH monitoring adaptation behavior indicated by the first DCI.

5. The method according to claim 4, wherein performing the PDCCH monitoring based on the second monitoring mode further comprises:

continuing operation of at least one of a search space set group switching timer or a PDCCH skipping timer on the BWP after the BWP switching in response to presence of at least one of the search space set group switching timer or the PDCCH skipping timer in operation and associated to a BWP before the BWP switching.

6. The method according to claim 1, wherein performing the PDCCH monitoring based on the second monitoring mode comprises:

in response to at least one of a number of PDCCH skipping durations configured by the BWP before the BWP switching being different from a number of PDCCH skipping durations configured by the BWP after the BWP switching, or a number of search space sets configured by the BWP before the BWP switching being different from a number of search space sets configured by the BWP after the BWP switching, performing one of:

ignoring the PDCCH monitoring adaptation behavior indicated by the first DCI;

in response to a BWP after the BWP switching being configured with a search space set group, monitoring a default search space set group, before receiving a second DCI; or

in response to the BWP after the BWP switching being configured with no search space set group, monitoring a search space configured on the BWP after the BWP switching, before receiving the second DCI;

wherein the second DCI comprises information indicating the PDCCH monitoring adaptation behavior, and is received by the user equipment after the BWP switching.

7. The method according to claim 6, wherein performing the PDCCH monitoring based on the second monitoring mode further comprises:

stopping operation of at least one of a search space set group switching timer or a PDCCH skipping timer in response to presence of at least one of the search space set group switching

timer or the PDCCH skipping timer in operation and associated to the BWP before the BWP switching.

8. The method according to claim 1, wherein performing the PDCCH monitoring based on the third monitoring mode comprises:

performing the PDCCH monitoring adaptation behavior indicated by the first DCI on a BWP after the BWP switching.

9. The method according to claim 7, wherein performing the PDCCH monitoring based on the third monitoring mode further comprises:

continuing operation of at least one of a search space set group switching timer or a PDCCH skipping timer on the BWP after the BWP switching in response to presence of at least one of the search space set group switching timer or the PDCCH skipping timer in operation.

10. The method according to claim 1, wherein performing the PDCCH monitoring based on one of the first monitoring mode, the second monitoring mode and the third monitoring mode comprises:

determining a PDCCH monitoring mode based on receiving time points or effective time points of the first DCI and a third DCI, and performing the PDCCH monitoring;

wherein, the PDCCH monitoring mode is one of the first monitoring mode, the second monitoring mode and the third monitoring mode;

the third DCI comprises information indicating the BWP switching.

11. The method according to claim 10, wherein determining the PDCCH monitoring mode based on the receiving time points of the first DCI and the third DCI comprises at least one of:

determining the PDCCH monitoring mode as the first monitoring mode or the second monitoring mode in response to the receiving time point of the first DCI preceding the receiving time point of the third DCI;

determining the PDCCH monitoring mode as one of the first monitoring mode, the second monitoring mode and the third monitoring mode in response to the receiving time point of the first DCI and the receiving time point of the third DCI being in a same PDCCH monitoring occasion, and the first DCI being different from the third DCI;

determining the PDCCH monitoring mode as the third monitoring mode in response to

the receiving time point of the first DCI and the receiving time point of the third DCI being in a same PDCCH monitoring occasion, and the first DCI being same as the third DCI; or

determining the PDCCH monitoring mode as the first monitoring mode or the second monitoring mode in response to the receiving time point of the first DCI and the receiving time point of the third DCI being in a same PDCCH monitoring occasion, and the first DCI being same as the third DCI.

12. The method according to claim 10, wherein determining the PDCCH monitoring mode based on the effective time points of the first DCI and the third DCI comprises at least one of:

determining the PDCCH monitoring mode as the first monitoring mode or the second monitoring mode in response to the effective time point of the first DCI preceding the effective time point of the third DCI;

determining the PDCCH monitoring mode as one of the first monitoring mode, the second monitoring mode and the third monitoring mode in response to the effective time point of the first DCI being same as the effective time point of the third DCI; or

determining the PDCCH monitoring mode as one of the first monitoring mode, the second monitoring mode and the third monitoring mode in response to the effective time point of the first DCI being after the effective time point of the third DCI.

13. The method according to claim 10, wherein the effective time point of the third DCI is a time point after a first offset following an end of a slot where the third DCI is located, or a time point after a second offset following an end of PDCCH symbols for transmitting the third DCI;

wherein the first offset is greater than or equal to a BWP switching delay specified in a communication protocol, and the second offset is a sum of remaining symbols in the slot where the third DCI is located, after removing the PDCCH symbols for transmitting the third DCI, and the first offset.

14. The method according to claim 10, wherein the effective time point of the first DCI is specified by a communication protocol or by a high-level configuration.

15. The method according to claim 1, wherein performing the PDCCH monitoring based on one of the first monitoring mode, the second monitoring mode and the third monitoring

mode comprises:

determining a PDCCH monitoring mode based on the PDCCH monitoring adaptation behavior indicated by the first DCI, and performing the PDCCH monitoring;

wherein, the PDCCH monitoring mode is one of the first monitoring mode, the second monitoring mode and the third monitoring mode.

16. The method according to claim 15, wherein determining the PDCCH monitoring mode based on the PDCCH monitoring adaptation behavior indicated by the first DCI comprises:

determining the PDCCH monitoring mode as the third monitoring mode in response to the PDCCH monitoring adaptation behavior indicated by the first DCI being PDCCH skipping.

17. The method of claim 1, further comprising:

stopping the PDCCH monitoring on a BWP after the BWP switching in response to the BWP after the BWP switching being a sleeping BWP.

18. A user equipment, comprising:

a receiving module configured to receive first downlink control information (DCI); and
a processing module, configured to, after bandwidth part (BWP) switching, perform physical downlink control channel (PDCCH) monitoring based on one of a first monitoring mode, a second monitoring mode and a third monitoring mode;

wherein the first DCI comprises information indicating a PDCCH monitoring adaptation behavior, and is received by the user equipment before the BWP switching;

wherein the processing module is further configured to:

in response to a BWP after the BWP switching being configured with a search space set group, monitoring a default search space set group, before receiving a second DCI; or

in response to the BWP after the BWP switching being configured with no search space set group, monitoring a search space configured on the BWP after the BWP switching, before receiving the second DCI;

wherein the second DCI comprises information indicating the PDCCH monitoring adaptation behavior, and is received by the user equipment after the BWP switching.

19. A non-transitory computer-readable storage medium with executable instructions stored thereon, wherein, when the executable instructions are executed by a processor, steps of

the method for channel monitoring according to any one of claims 1 to 17 are implemented.