WHAT IS CLAIMED IS:

1. An antenna panel application method, comprising:

activating a first antenna panel set and a second antenna panel set;

wherein the first antenna panel set comprises one or more first antenna panels used for uplink transmission, and the second antenna panel set comprises one or more second antenna panels used for downlink reception,

wherein activating the first antenna panel set and the second antenna panel set comprises:

automatically activating the first antenna panel set and the second antenna panel set according to panel capability information.

2. The method of claim 1, further comprising:

receiving activation signaling that indicates an antenna panel set to be activated.

3. The method of claim 2, wherein the activation signaling indicates a third antenna panel set and a fourth antenna panel set to be activated;

wherein automatically activating the first antenna panel set and the second antenna panel set comprises:

ignoring the activation signaling, and automatically activating the first antenna panel set and the second antenna panel set according to the panel capability information; and

wherein the method further comprises:

reporting panel activation information of the first antenna panel set and the second antenna panel set.

4. The method of claim 2, wherein the activation signaling indicates a part of antenna panels in the first antenna panel set and the second antenna panel set to be activated;

wherein automatically activating the first antenna panel set and the second antenna panel set comprises:

activating the part of the antenna panels in the first antenna panel set and the second

antenna panel set indicated through the activation signaling, and automatically activating the other part of the antenna panels in the first antenna panel set and the second antenna panel set according to the panel capability information; and

wherein the method further comprises:

reporting panel activation information of the first antenna panel set and the second antenna panel set.

5. The method of claim 2, further comprising:

before receiving the activation signaling that indicates the antenna panel set to be activated, reporting the panel capability information of an antenna panel comprised;

wherein the panel capability information indicates at least one of the following:

the number of antenna panels comprised;

when at least two antenna panels are comprised, whether the at least two antenna panels can be activated at the same time; or

when at least two antenna panels can be activated at the same time, whether to support the at least two activated antenna panels for simultaneous uplink transmission.

6. The method of claim 1,

wherein the method further comprises:

reporting panel activation information of the first antenna panel set and the second antenna panel set.

7. The method of claim 1, wherein the first antenna panel set and the second antenna panel set comprise at least one identical antenna panel which supports uplink transmission and downlink reception.

8. The method of any one of claims 1 to 7, further comprising:

receiving Physical Downlink Control Channel (PDCCH) signaling; and

determining a first antenna panel identifier of one of the first antenna panels for uplink transmission according to the PDCCH signaling.

9. The method of any one of claims 1 to 7, further comprising:

receiving PDCCH signaling, wherein the PDCCH signaling comprises indication information, and the indication information indicates first antenna panel identifiers of a plurality of first antenna panels for uplink transmission; and

determining one of the first antenna panels for uplink transmission according to a main antenna panel identifier indicated through at least one of physical layer signaling or high-level signaling, wherein the physical layer signaling comprises Downlink Control Information (DCI) signaling, and the high-level signaling comprises at least one of Media Access Control (MAC) layer signaling or Radio Resource Control (RRC) signaling.

10. The method of any one of claims 1 to 7, wherein

the second antenna panel set has a plurality of downlink reception configuration combinations;

the downlink reception configuration combination comprises one of the following:

a part of the second antenna panels are used for receiving at least one of downlink reference signal, downlink control channel signaling or downlink data, and the rest of the second antenna panels do not perform downlink reception;

a part of the second antenna panels are used for receiving at least one of downlink reference signal, downlink control channel signaling or downlink data, and the rest of the second antenna panels are used for receiving the downlink reference signal; or

all of the second antenna panels are used for receiving at least one of downlink reference signal, downlink control channel signaling, or downlink data.

11. The method of any one of claims 1 to 7, further comprising at least one of the following:

receiving PDCCH signaling using at least one of the second antenna panels, and sending uplink data on a Physical Uplink Shared Channel (PUSCH) using one of the first antenna panels;

receiving a cell reference signal of a serving cell using at least one of the second antenna panels, and sending at least one of a beam measurement report or a channel state

information measurement report using one of the first antenna panels;

receiving a downlink reference signal of at least one of the serving cell or neighboring cell using at least one of the second antenna panels, and sending a radio resource management measurement report using one of the first antenna panels;

receiving at least one of the PDCCH signaling or Physical Downlink Shared Channel (PDSCH) data using at least one of the second antenna panels, and sending, using one of the first antenna panels, a random access preamble to a target cell for access;

receiving the PDSCH data using at least one of the second antenna panels, and sending a Hybrid Automatic Repeat Request (HARQ) feedback for downlink reception data using one of the first antenna panels; or

receiving the downlink reference signal using at least one of the second antenna panels, and reporting beam failure information using one of the first antenna panels.

12. An antenna panel application method, comprising:

sending activation signaling, wherein the activation signaling indicates an antenna panel set to be activated, and the antenna panel set to be activated comprise a first antenna panel set and a second antenna panel set, the first antenna panel set comprising one or more first antenna panels used for uplink transmission, and the second antenna panel set comprising one or more second antenna panels used for downlink reception,

wherein the first antenna panel set and the second antenna panel set are activated by:

automatically activating the first antenna panel set and the second antenna panel set according to panel capability information.

13. The method of claim 12, further comprising:

receiving reported panel capability information of an antenna panel;

wherein sending the activation signaling comprises:

sending the activation signaling according to the panel capability information.

14. The method of claim 12, wherein one of the following applies:

the activation signaling indicates a part of antenna panels in the first antenna panel

set and the second antenna panel set to be activated; or

the activation signaling indicates a third antenna panel set and a fourth antenna panel set to be activated.

15. The method of any one of claims 12 to 14, further comprising:

receiving reported panel activation information of an activated antenna panel.

16. The method of any one of claims 12 to 14, further comprising:

sending Physical Downlink Control Channel (PDCCH) signaling, wherein the PDCCH signaling indicates a first antenna panel identifier of one of the first antenna panels for uplink transmission.

17. An antenna panel application apparatus, comprising: a processor, a memory and an executable program stored in the memory and capable of being run by the processor, wherein when running the executable program, the processor performs the antenna panel application method of any one of claims 1 to 11 or claims 12 to 16.

18. A non-transitory computer-readable storage medium having stored therein an executable program that, when executed by a processor, causes the processor to perform the antenna panel application method of any one of claims 1 to 11 or claims 12 to 16.