

WHAT IS CLAIMED IS:

1. A method, comprising:

transmitting, at a first device and to a second device, a message indicating an allocation of pre-configured physical uplink shared channel, PUSCH, resources in accordance with a configured grant-based scheme, the PUSCH resources allocated by the first device for transmission from the second device to the first device while the second device is in an inactive mode,

transmitting, at the first device and to the second device, a first configuration indicating:

information about candidate beams assigned to the second device, and

a correspondence between the candidate beams and a plurality of transmission occasions of the pre-configured PUSCH resources;

detecting, at one of the plurality of transmission occasions that corresponds to more than one candidate beam, a transmission from the second device according to the first configuration and an indication of a target beam which is determined by the second device from the more than one candidate beam.

2. The method of claim 1, wherein the correspondence between the at least one candidate beam and the plurality of transmission occasions indicates that different candidate beams are corresponding to different subsets of the plurality of transmission occasions.

3. The method of claim 1, wherein the transmission occasions are periodic resources; and

wherein the first configuration further indicates respective periodicity of the candidate beams.

4. The method of claim 2, wherein a first candidate beam of the candidate beams is configured with a first periodicity, and a second candidate beam of the candidate beams is configured with a different second periodicity.

5. The method of any of claims 1 to 4, wherein the first configuration is transmitted within a radio resource control, RRC, message instructing the second device to enter into the inactive mode, and the inactive mode is a RRC inactive mode.

6. The method of any of claims 1 to 5, wherein the first configuration indicates respective indexes of the candidate beams assigned to the second device.

7. A method, comprising:

receiving, at a second device and from a first device, a message indicating an allocation of pre-configured physical uplink shared channel, PUSCH, resources in accordance with a configured grant-based scheme, the PUSCH resources allocated by the first device for transmission from the second device to the first device while the second device is in an inactive mode,

receiving, at the second device and from the first device, a first configuration indicating:

information about candidate beams assigned to the second device, and

a correspondence between the candidate beams and a plurality of transmission occasions of the pre-configured PUSCH resources; and

in accordance with a determination that the second device is in an inactive mode and there is transmission to be transmitted from the second device to the first device,

determining a target transmission occasion from the transmission occasions according to the first configuration, the target transmission occasion corresponding to more than one candidate beam;

performing, at the target transmission occasion, the transmission from the second device to the first device; and

transmitting at the target transmission occasion an indication of a target beam selected from the more than one candidate beam.

8. The method of claim 7, wherein the correspondence between the candidate beams and the plurality of transmission occasions indicates that different candidate beams are corresponding to different subsets of the plurality of transmission occasions.

9. The method of claim 7, wherein the transmission occasions are periodic resources; and

wherein the first configuration further indicates respective periodicity of the candidate beams.

10. The method of claim 7, wherein a first candidate beam of the candidate beams is configured with a first periodicity, and a second candidate beam of the candidate beams is configured with a different second periodicity.

11. The method of claim 7, wherein determining the target transmission occasion comprises:

determining the target transmission occasion based on at least one of the following:

received signal strength of the candidate beams, or

time differences between the current time point and transmission time points corresponding to the transmission occasions.

12. The method of claim 7, wherein determining the target transmission occasion comprises:

determining one of the following as the target transmission occasion:

a transmission occasion corresponding to a candidate beam of the candidate beams with the best received signal strength, or

a next transmission occasion corresponding to a candidate beam of the candidate beams that supports an acceptable transmission from the second device to the first device.

13. The method of any of claims 7 to 12, the method comprising performing a subsequent transmission using a transmission occasion corresponding to the target beam.

14. The method of any of claims 7 to 13, wherein the first configuration is transmitted within a radio resource control, RRC, message instructing the second device to enter into the inactive mode, and the inactive mode is a RRC inactive mode.

15. The method of any of claims 7 to 14, wherein the first configuration indicates respective indexes of the candidate beams assigned to the second device.

16. The method of any of claims 7 to 15, wherein the determining the target transmission occasion is based on the selected target beam.

17. A first device comprising:

at least one processor; and
at least one memory including computer program code;
wherein the at least one memory and the computer program code are configured to,
with the at least one processor, cause the first device to perform the method of any one of
claims 1 to 6.

18. A second device comprising:
at least one processor; and
at least one memory including computer program code;
wherein the at least one memory and the computer program code are configured to,
with the at least one processor, cause the second device to perform the method of any one of
claims 7 to 16.

19. A computer readable medium comprising program instructions for causing an
apparatus to perform at least the method of any of claims 1 to 16.