

CLAIMS

What is claimed is:

- 1 1. A method for wireless communication at a user equipment (UE),
2 comprising:
3 receiving, from a base station, configuration information for a control channel
4 search space set in a first transmission time interval (TTI), the received configuration
5 information comprising an indication of an absence of a physical downlink control channel
6 (PDCCH) transmission in the control channel search space set, and a set of time and
7 frequency resources for the control channel search space set;
8 identifying time and frequency resources allocated for a physical downlink
9 shared channel (PDSCH) in a second TTI based at least in part on the set of time and
10 frequency resources for the control channel search space set in the first TTI and the indication
11 of the absence of a PDCCH transmission in the control channel search space set; and
12 receiving a PDSCH transmission in the second TTI using the identified time
13 and frequency resources.
- 1 2. The method of claim 1, further comprising:
2 refraining from performing blind decoding in the control channel search space
3 set based at least in part on receiving the indication of the absence of the PDCCH
4 transmission.
- 1 3. The method of claim 1, wherein the configuration information for the
2 control channel search space set is received in radio resource control signaling.
- 1 4. The method of claim 1, wherein the configuration information
2 comprises a control resource set configuration from the base station, a transmission
3 configuration indication (TCI) state, and the time and frequency resources corresponding to
4 resources of the control resource set configuration.
- 1 5. The method of claim 1, further comprising:
2 receiving, in a field of a downlink control information (DCI), a transmission
3 configuration indication (TCI) state, wherein the TCI state comprises a spatial quasi-
4 collocation (QCL) parameter for a beam indication.

1 6. The method of claim 1, further comprising:
2 receiving, in a field of a downlink control information (DCI), a transmission
3 configuration indication (TCI) state; and
4 receiving, based at least in part on a scheduling offset of the PDSCH
5 transmission being greater than or equal to a threshold value, the PDSCH transmission in the
6 identified time and frequency resources using a beam associated with the received TCI state.

1 7. The method of claim 1, further comprising:
2 receiving, in a field of a downlink control information (DCI), a first
3 transmission configuration indication (TCI) state; and
4 receiving, based at least in part on a scheduling offset of the PDSCH
5 transmission being less than or equal to a threshold value, the PDSCH transmission in the
6 identified time and frequency resources using a first beam associated with a second TCI state,
7 the first beam different from a second beam associated with the first TCI state, and the
8 second TCI state of a control resource set associated with the control channel search space
9 set.

1 8. The method of claim 1, wherein the control channel search space set
2 associated with a control resource set comprises a zero number of PDCCH candidates.

1 9. A method for wireless communication at a base station, comprising:
2 identifying time and frequency resources for a physical downlink shared
3 channel (PDSCH) to be transmitted to a user equipment (UE) in a first transmission time
4 interval (TTI);
5 transmitting, to the UE, configuration information for a control channel search
6 space set in a second TTI, the second TTI preceding the first TTI, and the configuration
7 information comprising an indication of an absence of a physical downlink control channel
8 (PDCCH) transmission to be sent in the control channel search space set to indicate the
9 identified time and frequency resources for the PDSCH, and a set of time and frequency
10 resources for the control channel search space set; and
11 transmitting a PDSCH transmission in the first TTI using the identified time
12 and frequency resources for the PDSCH.

1 10. The method of claim 9, further comprising:

2 transmitting the configuration information for the control channel search space
3 set using radio resource control signaling.

1 11. The method of claim 9, wherein the configuration information
2 comprises a control resource set configuration, a transmission configuration indication (TCI)
3 state, and the time and frequency resources corresponding to resources of the control resource
4 set configuration.

1 12. The method of claim 9, further comprising:
2 transmitting, in a field of a downlink control information (DCI), a
3 transmission configuration indication (TCI) state, wherein the TCI state comprises a spatial
4 quasi-collocation (QCL) parameter for a beam indication.

1 13. The method of claim 9, further comprising:
2 transmitting, in a field of a downlink control information (DCI), a
3 transmission configuration indication (TCI) state; and
4 transmitting, based at least in part on a scheduling offset of the PDSCH
5 transmission being greater than or equal to a threshold value, the PDSCH transmission in the
6 identified time and frequency resources using a beam associated with the transmitted TCI
7 state.

1 14. The method of claim 9, further comprising:
2 transmitting, in a field of a downlink control information (DCI), a first
3 transmission configuration indication (TCI) state; and
4 transmitting, based at least in part on a scheduling offset of the PDSCH
5 transmission being less than or equal to a threshold value, the PDSCH transmission in the
6 identified time and frequency resources using a first beam associated with a second TCI state,
7 the first beam different from a second beam associated with the first TCI state, and the
8 second TCI state of a control resource set associated with the control channel search space
9 set.

1 15. The method of claim 9, wherein the control channel search space set
2 associated with a control resource set comprises a zero number of PDCCH candidates.

1 16. An apparatus for wireless communication, comprising:

2 means for receiving, from a base station, configuration information for a
3 control channel search space set in a first transmission time interval (TTI), the received
4 configuration information comprising an indication of an absence of a physical downlink
5 control channel (PDCCH) transmission in the control channel search space set, and a set of
6 time and frequency resources for the control channel search space set;

7 means for identifying time and frequency resources allocated for a physical
8 downlink shared channel (PDSCH) in a second TTI based at least in part on the set of time
9 and frequency resources for the control channel search space set in the first TTI and the
10 indication of the absence of a PDCCH transmission in the control channel search space set;
11 and

12 means for receiving a PDSCH transmission in the second TTI using the
13 identified time and frequency resources.

1 17. The apparatus of claim 16, further comprising:

2 means for refraining from performing blind decoding in the control channel
3 search space set based at least in part on receiving the indication of the absence of the
4 PDCCH transmission.

1 18. The apparatus of claim 16, further comprising:

2 means for receiving, in a field of a downlink control information (DCI), a
3 transmission configuration indication (TCI) state, wherein the TCI state comprises a spatial
4 quasi-collocation (QCL) parameter for a beam indication.

1 19. The apparatus of claim 16, further comprising:

2 means for receiving, in a field of a downlink control information (DCI), a
3 transmission configuration indication (TCI) state; and

4 means for receiving, based at least in part on a scheduling offset of the
5 PDSCH transmission being greater than or equal to a threshold value, the PDSCH
6 transmission in the identified time and frequency resources using a beam associated with the
7 received TCI state.

1 20. The apparatus of claim 16, further comprising:

2 means for receiving, in a field of a downlink control information (DCI), a first
3 transmission configuration indication (TCI) state; and

4 means for receiving, based at least in part on a scheduling offset of the
5 PDSCH transmission being less than or equal to a threshold value, the PDSCH transmission
6 in the identified time and frequency resources using a first beam associated with a second
7 TCI state, the first beam different from a second beam associated with the first TCI state, and
8 the second TCI state of a control resource set associated with the control channel search
9 space set.

1 21. An apparatus for wireless communication, comprising:
2 means for identifying time and frequency resources for a physical downlink
3 shared channel (PDSCH) to be transmitted to a user equipment (UE) in a first transmission
4 time interval (TTI);
5 means for transmitting, to the UE, configuration information for a control
6 channel search space set in a second TTI, the second TTI preceding the first TTI, and the
7 configuration information comprising an indication of an absence of a physical downlink
8 control channel (PDCCH) transmission to be sent in the control channel search space set to
9 indicate the identified time and frequency resources for the PDSCH, and a set of time and
10 frequency resources for the control channel search space set; and
11 means for transmitting a PDSCH transmission in the first TTI using the
12 identified time and frequency resources for the PDSCH.

1 22. The apparatus of claim 21, further comprising:
2 means for transmitting the configuration information for the control channel
3 search space set using radio resource control signaling.

1 23. The apparatus of claim 21, further comprising:
2 means for transmitting, in a field of a downlink control information (DCI), a
3 transmission configuration indication (TCI) state, wherein the TCI state comprises a spatial
4 quasi-collocation (QCL) parameter for a beam indication.

1 24. The apparatus of claim 21, further comprising:
2 means for transmitting the PDSCH transmission in the first TTI using a beam
3 corresponding to the identified frequency resources based at least in part on a scheduling
4 offset of the PDSCH transmission being greater than or equal to a threshold value.

1 25. The apparatus of claim 21, further comprising:

2 means for transmitting the PDSCH transmission in the first TTI using a first
3 beam based at least in part on a scheduling offset of the PDSCH transmission being less than
4 or equal to a threshold value, the first beam different from a second beam corresponding to
5 the identified time and frequency resources.

1 26. An apparatus for wireless communication, comprising:
2 a processor;
3 memory in electronic communication with the processor; and
4 instructions stored in the memory and executable by the processor to cause the
5 apparatus to:

6 receive, from a base station, configuration information for a control
7 channel search space set in a first transmission time interval (TTI), the received
8 configuration information comprising an indication of an absence of a physical
9 downlink control channel (PDCCH) transmission in the control channel search space
10 set, and a set of time and frequency resources for the control channel search space set;
11 identify time and frequency resources allocated for a physical
12 downlink shared channel (PDSCH) in a second TTI based at least in part on the set of
13 time and frequency resources for the control channel search space set in the first TTI
14 and the indication of the absence of a PDCCH transmission in the control channel
15 search space set; and
16 receive a PDSCH transmission in the second TTI using the identified
17 time and frequency resources.

1 27. The apparatus of claim 26, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 refrain from performing blind decoding in the control channel search space set
4 based at least in part on receiving the indication of the absence of the PDCCH transmission.

1 28. The apparatus of claim 26, wherein the configuration information for
2 the control channel search space set is received in radio resource control signaling.

1 29. The apparatus of claim 26, wherein the configuration information
2 comprises a control resource set configuration from the base station, a transmission
3 configuration indication (TCI) state, and the time and frequency resources corresponding to
4 resources of the control resource set configuration.

1 30. The apparatus of claim 26, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 receive, in a field of a downlink control information (DCI), a transmission
4 configuration indication (TCI) state, wherein the TCI state comprises a spatial quasi-
5 collocation (QCL) parameter for a beam indication.

1 31. The apparatus of claim 26, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 receive, in a field of a downlink control information (DCI), a transmission
4 configuration indication (TCI) state; and
5 receive, based at least in part on a scheduling offset of the PDSCH
6 transmission being greater than or equal to a threshold value, the PDSCH transmission in the
7 identified time and frequency resources using a beam associated with the received TCI state.

1 32. The apparatus of claim 26, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 receive, in a field of a downlink control information (DCI), a first transmission
4 configuration indication (TCI) state; and
5 receive, based at least in part on a scheduling offset of the PDSCH
6 transmission being less than or equal to a threshold value, the PDSCH transmission in the
7 identified time and frequency resources using a first beam associated with a second TCI state,
8 the first beam different from a second beam associated with the first TCI state, and the
9 second TCI state of a control resource set associated with the control channel search space
10 set.

1 33. The apparatus of claim 26, wherein the control channel search space
2 set associated with a control resource set comprises a zero number of PDCCH candidates.

1 34. An apparatus for wireless communication, comprising:
2 a processor;
3 memory in electronic communication with the processor; and
4 instructions stored in the memory and executable by the processor to cause the
5 apparatus to:

6 identify time and frequency resources for a physical downlink shared
7 channel (PDSCH) to be transmitted to a user equipment (UE) in a first transmission
8 time interval (TTI);
9 transmit, to the UE, configuration information for a control channel
10 search space set in a second TTI, the second TTI preceding the first TTI, and the
11 configuration information comprising an indication of an absence of a physical
12 downlink control channel (PDCCH) transmission to be sent in the control channel
13 search space set to indicate the identified time and frequency resources for the
14 PDSCH, and a set of time and frequency resources for the control channel search
15 space set; and
16 transmit a PDSCH transmission in the first TTI using the identified
17 time and frequency resources for the PDSCH.

1 35. The apparatus of claim 34, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 transmit the configuration information for the control channel search space set
4 using radio resource control signaling.

1 36. The apparatus of claim 34, wherein the configuration information
2 comprises a control resource set configuration, a transmission configuration indication (TCI)
3 state, and the time and frequency resources corresponding to resources of the control resource
4 set configuration.

1 37. The apparatus of claim 34, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 transmit, in a field of a downlink control information (DCI), a transmission
4 configuration indication (TCI) state, wherein the TCI state comprises a spatial quasi-
5 collocation (QCL) parameter for a beam indication.

1 38. The apparatus of claim 34, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 transmit, in a field of a downlink control information (DCI), a transmission
4 configuration indication (TCI) state; and
5 transmit, based at least in part on a scheduling offset of the PDSCH
6 transmission being greater than or equal to a threshold value, the PDSCH transmission in the

7 identified time and frequency resources using a beam associated with the transmitted TCI
8 state.

1 39. The apparatus of claim 34, wherein the instructions are further
2 executable by the processor to cause the apparatus to:
3 transmit, in a field of a downlink control information (DCI), a first
4 transmission configuration indication (TCI) state; and
5 transmit, based at least in part on a scheduling offset of the PDSCH
6 transmission being less than or equal to a threshold value, the PDSCH transmission in the
7 identified time and frequency resources using a first beam associated with a second TCI state,
8 the first beam different from a second beam associated with the first TCI state, and the
9 second TCI state of a control resource set associated with the control channel search space
10 set.

1 40. The apparatus of claim 34, wherein the control channel search space
2 set associated with a control resource set comprises a zero number of PDCCH candidates.

1 41. A non-transitory computer-readable medium storing code for wireless
2 communication, the code comprising instructions executable by a processor to:
3 receive, from a base station, configuration information for a control channel
4 search space set in a first transmission time interval (TTI), the received configuration
5 information comprising an indication of an absence of a physical downlink control channel
6 (PDCCH) transmission in the control channel search space set, and a set of time and
7 frequency resources for the control channel search space set;
8 identify time and frequency resources allocated for a physical downlink shared
9 channel (PDSCH) in a second TTI based at least in part on the set of time and frequency
10 resources for the control channel search space set in the first TTI and the indication of the
11 absence of a PDCCH transmission in the control channel search space set; and
12 receive a PDSCH transmission in the second TTI using the identified time and
13 frequency resources.

1 42. A non-transitory computer-readable medium storing code for wireless
2 communication, the code comprising instructions executable by a processor to:

3 identify time and frequency resources for a physical downlink shared channel
4 (PDSCH) to be transmitted to a user equipment (UE) in a first transmission time interval
5 (TTI);
6 transmit, to the UE, configuration information for a control channel search
7 space set in a second TTI, the second TTI preceding the first TTI, and the configuration
8 information comprising an indication of an absence of a physical downlink control channel
9 (PDCCH) transmission to be sent in the control channel search space set to indicate the
10 identified time and frequency resources for the PDSCH, and a set of time and frequency
11 resources for the control channel search space set; and
12 transmit a PDSCH transmission in the first TTI using the identified time and
13 frequency resources for the PDSCH.