CLAIMS

1. An apparatus comprising:

means for obtaining information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is obtained based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

means for receiving at least one physical downlink shared channel resource allocation for the apparatus;

means for determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell; and

means for determining a hybrid automatic repeat request acknowledgement codebook based at least in part on the determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

2. An apparatus comprising:

means for transmitting, to a user equipment, information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is transmitted based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

means for transmitting at least one physical downlink shared channel resource allocation for the user equipment; and

means for receiving a hybrid automatic repeat request acknowledgement codebook from the user equipment, wherein the hybrid automatic repeat request acknowledgement codebook is determined based at least in part on one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

3. The apparatus according to any of claims 1 to 2, wherein the one or more resources comprises one or more slots or symbols.

4. The apparatus according to any of claims 1 to 3, wherein the at least one physical downlink shared channel resource allocation comprises a semi-static physical downlink shared channel resource allocation which comprises one or more of: a physical downlink shared channel time domain resource allocation; a semi-persistent scheduling resource allocation; or a semi-persistent scheduling group resource allocation.

5. The apparatus according to any of claims 1 to 4, wherein the one or more resources of the at least one physical downlink shared channel resource allocation overlap, in time, fully or in part with the one or more non-active periods of the cell.

6. The apparatus according to any of claims 1 to 5, wherein the cell discontinuous transmission pattern is indicative of a cell discontinuous transmission cycle.

7. A method performed by an apparatus, comprising:

obtaining information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is obtained based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

receiving at least one physical downlink shared channel resource allocation for the apparatus;

determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell; and

determining a hybrid automatic repeat request acknowledgement codebook based at least in part on the determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement

codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

8. A method performed by an apparatus, comprising:

transmitting, to a user equipment, information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is transmitted based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

transmitting at least one physical downlink shared channel resource allocation for the user equipment; and

receiving a hybrid automatic repeat request acknowledgement codebook from the user equipment, wherein the hybrid automatic repeat request acknowledgement codebook is determined based at least in part on one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

9. The method according to any of claims 7 to 8, wherein the one or more resources comprises one or more slots or symbols.

10. The method according to any of claims 7 to 9, wherein the one or more resources of the at least one physical downlink shared channel resource allocation overlap, in time, fully or in part with the one or more non-active periods of the cell.

11. The method according to any of claims 7 to 10, wherein the cell discontinuous transmission pattern is indicative of a cell discontinuous transmission cycle.

12. A computer readable medium comprising instructions which, when executed by an apparatus, cause the apparatus to perform at least the following:

obtaining information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is obtained based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

receiving at least one physical downlink shared channel resource allocation for the apparatus;

determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell; and

determining a hybrid automatic repeat request acknowledgement codebook based at least in part on the determining one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

13. A computer readable medium comprising instructions which, when executed by an apparatus, cause the apparatus to perform at least the following:

transmitting, to a user equipment, information of one or more non-active periods of a cell, wherein the information of the one or more non-active periods of the cell is transmitted based on a cell discontinuous transmission pattern configured for the cell and an indication of activation or deactivation of the cell discontinuous transmission pattern;

transmitting at least one physical downlink shared channel resource allocation for the user equipment; and

receiving a hybrid automatic repeat request acknowledgement codebook from the user equipment, wherein the hybrid automatic repeat request acknowledgement codebook is determined based at least in part on one or more resources of the at least one physical downlink shared channel resource allocation that overlap fully or in part with the one or more non-active periods of the cell, wherein the hybrid automatic repeat request acknowledgement codebook is determined by omitting the one or more resources that overlap fully or in part with the one or more non-active periods of the cell.

14. The computer readable medium according to any of claims 12 to 13, wherein the at least one physical downlink shared channel resource allocation comprises a semi-static physical downlink shared channel resource allocation which comprises one or more of: a physical downlink shared channel time domain resource allocation; a semi-persistent scheduling resource allocation; or a semi-persistent scheduling group resource allocation.

15. The computer readable medium according to any of claims 12 to 14, wherein the cell discontinuous transmission pattern is indicative of a cell discontinuous transmission cycle.