~~**WHAT IS CLAIMED IS:**~~

CLAIMS

1.~~—~~ A method for wireless communications by a user equipment (UE), comprising:

~~———~~ receiving a system information block (SIB~~), from a base station (BS),~~) containing system information ~~indicating~~, wherein values of bits of the system information indicate a resource set of ~~a plurality of~~ sixteen configured resource sets, each resource set containing ~~a plurality of~~sixteen resources~~;~~

~~receiving downlink control information (DCI) in a physical downlink control channel (PDCCH), from the BS, containing resource indicator (RI) bits indicating a resource of the plurality of resources of the indicated resource set available~~ for ~~the UE to use for transmitting uplink control information (UCI) in a~~ physical uplink control channel (PUCCH) transmission~~;~~

~~determining~~, wherein the ~~resource based on~~values of the ~~SI, the RI~~ bits~~, and a control channel element (CCE) index~~ of the ~~PDCCH; and~~

~~transmitting~~system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the ~~UCI in the PUCCH using the determined~~indicated resource~~.~~

~~2. The method of claim 1,~~ set, and wherein the ~~system information is received via remaining~~ values of the bits of the system information ~~(RMSI) bits.~~

~~3. The method of claim 2, wherein~~

~~The RMSI bit comprise 4 bits, and~~

~~the RI bits comprise 3 bits.~~

~~4. The method of claim 2, wherein determining the resource includes determining the resource set based on a value of the RMSI bits and an associated mapping.~~

~~5. The method of claim 4, wherein the associated mapping maps each value of the RMSI bits to at least one of: a set of durations of the PUCCH transmission,~~further indicate a set of repetition factors for the PUCCH transmission, a set of ~~resource block~~

(RB) indexes, a set of initial shift indexes per RB, orand a set of one or more orthogonal cover code (OCC) indexes per RB.

6. The method of claim 5, wherein at least one of:

the set of durations comprises one or more durations of 2 symbols, 4 symbols, 10 symbols, or 14 symbols,

for the PUCCH transmission; receiving downlink control information (DCI) in a physical downlink control channel (PDCCH) containing resource indicator (RI) bits; determining a resource index, r, corresponding to one of the sixteen resources of the indicated resource set based on an explicit value of the RI bits and on a control channel element (CCE) index of the PDCCH; and transmitting uplink control information (UCI) in the PUCCH using the one of the sixteen resources.

2. The method of claim 1, wherein the system information is received via remaining system information (RMSI) bits.

3. The method of claim 2, wherein: the RMSI bit comprise 4 bits, and the RI bits comprise 3 bits.

4. The method of claim 1, wherein at least one of: the set of RB indexes indicatesfor the sixteen resource sets comprises sets of 2 RBs, 4, or RBs, and 8 RBs, or

the set of OCC indexindexes indicates 1 or 2 OCCs.

7. 5. The method of claim 51, wherein:

a first RB index is for a first hop of a frequency hopping pattern, and

the method further comprises determining a second RB index for a second hop of the frequency hopping pattern based on the frequency hopping pattern and the first RB index for the first hop.

8. The method of claim 1, wherein:

determining the resource is based on a mapping of the plurality of resource indexes of the indicated resource set to values of the RI bits and the CCE index, and

the resource indexes are further mapped to at least one of: resource block (RB) indexes, orthogonal cover code (OCC) indexes, or shift indexes.

~~9. The method of claim 8, wherein:~~

~~the value of the RI bits explicitly indicates the RB index and the OCC index, and~~

~~the method further comprises deriving the shift index implicitly based on the relative resource index.~~

~~10. The method of claim 8, wherein each of the plurality of resource sets is associated with a different mapping.~~

~~11. The method of claim 1, wherein:~~

~~the plurality of resource sets comprises sixteen resource sets, and~~

~~the plurality of resources comprises sixteen resources.~~

~~12.~~ 6. The method of claim 1, wherein ~~the indicated resource is at an edge of the system bandwidth.~~: determining the resource index is based on a function of the values of the RI bits and the CCE index.

7. The method of claim 1, further comprising: determining one or more relative resource indexes; and deriving one or more of the set of one or more initial CS indexes implicitly based on the relative resource indexes.

8. The method of claim 1, wherein the one of the sixteen resources is at an edge of a system bandwidth.

~~13.~~ 9. A method for wireless communications by a base station (BS), comprising:

transmitting a system information block (SIB), to a user equipment (UE), containing system information ~~indicating~~, wherein values of bits of the system information indicate a resource set of a ~~plurality of predefined~~ sixteen configured resource sets, each resource set containing ~~a plurality of~~sixteen resources~~;~~

for physical uplink control channel (PUCCH) transmission, wherein the values of the bits of the system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the indicated resource set, and wherein the values of the bits of the system information further

indicate a set of repetition factors for the PUCCH transmission, a set of RB indexes and a set of one or more orthogonal cover code (OCC) indexes for the PUCCH transmission; transmitting downlink control information (DCI) on physical downlink control channel (PDCCH) associated with a control channel element (CCE) index, to the UE, containing resource indicator (RI) bits ~~to~~ , wherein the CCE index and an explicit value of the RI bits together indicate a resource index, r, corresponding to one of the ~~plurality of~~sixteen resources of the indicated resource set available for the UE to use for transmitting uplink control information (UCI) in ~~a physical uplink control channel (~~the PUCCH~~)~~ transmission; and

~~————~~ monitoring the ~~indicated resource~~one of the sixteen resources for the PUCCH transmission.

~~14.~~ 10. The method of claim ~~13~~9, wherein the system information is provided via remaining system information (RMSI) bits.

~~15.~~ 11. The method of claim ~~14~~10, wherein:

the RMSI bits comprise 4 bits, and

the RI bits comprise 3 bits.

~~16.~~ 12. The method of claim ~~14~~9, wherein at least one of: the set of RB indexes for the sixteen resource ~~set of the plurality of predefined resource~~sets comprises sets ~~is indicated via a value of the RMSI bits based on an associated mapping.~~

~~17. The method of claim 16, wherein the associated mapping maps each value of the RMSI bits to at least one of: a set of durations of the PUCCH transmission, a set of repetition factors for the PUCCH transmission, a set of resource block (RB) indexes, a~~of 2 RBs, 4 RBs, and 8 RBs, or the set of ~~initial shift indexes per RB, or a set of orthogonal cover code (OCC) indexes per RB.~~

~~18. The method of claim 17, wherein at least one of:~~

~~the set of durations comprise one or more durations of 2 symbols, 4 symbols, 10 symbols, or 14 symbols,~~

~~the set of RB indexes indicates 2, 4,~~one or ~~8 RBs, or~~

~~the set of~~more OCC ~~index~~indexes indicates 1 or 2 OCCs.

~~19.~~ 13. The method of claim ~~17~~9, wherein:

a first RB index is for a first hop of a frequency hopping pattern, and

a second RB index is for a second hop of the frequency hopping pattern based on the frequency hopping pattern and the first RB index for the first hop.

~~20.~~ 14. The method of claim ~~13~~9, wherein:

the resource ~~of the plurality of resources of the indicated resource set~~index is indicated via a ~~mapping~~function of the ~~plurality of resources to~~ values of the RI bits and the CCE index~~, and~~

~~the resource indexes are further mapped to at least one of: relative resource indexes, resource block (RB) indexes, orthogonal cover code (OCC) indexes, or shift indexes~~.

~~21.~~ 15. The method of claim ~~20~~14, wherein:

~~the value of the RI bits explicitly indicates the RB index and the OCC index, and~~

~~the shift~~ the CS index is implicitly derived based on ~~the~~one or more relative resource ~~index.~~indexes.

~~22.~~ 16. The method of claim ~~20~~9, wherein ~~each~~the one of the ~~plurality of resource sets is associated with a different mapping.~~

~~23. The method of claim 13, wherein:~~

~~the plurality of resource sets comprises~~ sixteen ~~resource sets, and~~

~~the plurality of~~ resources ~~comprises sixteen resources.~~

~~24. The method of claim 13, wherein the indicated resource~~ is at an edge of a system bandwidth.

~~25.~~ 17. An apparatus for wireless communications, comprising:

~~means for receiving~~ at least one processor; and a memory coupled to the at least one processor, the memory comprising code executable by the at least one processor to cause the apparatus to: receive a system information block (SIB~~), from another~~

~~apparatus,~~) containing system information ~~indicating~~, wherein values of bits of the system information indicate a resource set of ~~a plurality of~~sixteen configured resource sets, each resource set containing ~~a plurality of~~sixteen resources~~;~~

~~receiving downlink control information (DCI) in a~~ for physical ~~downlink control channel (PDCCH), from the another apparatus, containing resource indicator (RI) bits indicating a resource of the plurality of resources of the indicated resource set available for the apparatus to use for transmitting~~ uplink control ~~information (UCI) in a physical uplink control~~ channel (PUCCH) ~~transmission;~~

~~determining the resource based on the SI, a control channel element (CCE) index of the PDCCH, and the RI bits; and~~

~~transmitting the UCI in the PUCCH using the determined resource.~~

~~26. The apparatus of claim 25, wherein:~~

~~the SIB comprises remaining system information (RMSI) bits, and~~

~~determining the resource includes determining the resource set based on a value of the RMSI bits and an associated mapping.~~

~~27. The apparatus of claim 26, wherein the associated mapping maps each value of the RMSI bits to at least one of: a set of durations of the PUCCH~~ transmission, wherein the values of the bits of the system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the indicated resource set, and wherein the values of the bits of the system information further indicate a set of repetition factors for the PUCCH transmission, a set of ~~resource block (~~RB~~)~~ indexes~~,~~ and a set of ~~initial shift indexes per RB,~~one or ~~a set of orthogonal cover code (OCC) indexes per RB.~~

~~28. The apparatus of claim 27~~more orthogonal cover code (OCC) indexes for the PUCCH transmission; receive downlink control information (DCI) in a physical downlink control channel (PDCCH) containing resource indicator (RI) bits; determine a resource index, r, corresponding to one of the sixteen resources of the indicated resource set based on an explicit value of the RI bits and on a control channel element (CCE) index of the PDCCH; and transmit uplink control information (UCI) in the PUCCH using the one of the sixteen resources.

18. The apparatus of claim 17, wherein the system information is received via remaining system information (RMSI) bits.

19. The apparatus of claim 18, wherein:

the RMSI bit comprise 4 bits, and the RI bits comprise 3 bits.

20. The apparatus of claim 17, wherein at least one of: the set of RB indexes for the sixteen resource sets comprises sets of 2 RBs, 4 RBs, and 8 RBs, or the set of OCC indexes indicates 1 or 2 OCCs.

21. The apparatus of claim 17, wherein: a first RB index is for a first hop of a frequency hopping pattern, and

the code is further executable by the at least one processor to cause the apparatus ~~further comprises means for determining~~to determine a second RB index for a second hop of the frequency hopping pattern based on the frequency hopping pattern and the first RB index for the first hop.

~~29.~~ 22. The apparatus of claim ~~25~~17, wherein:

~~determining~~ the code executable by the at least one processor to cause the apparatus to determine the resource ~~is~~index comprises code executable by the at least one processor to cause the apparatus to determine the resource index based on a ~~mapping~~function of the ~~plurality of resources of the indicated resource set to~~ values of the RI bits and the CCE index~~, and~~

~~the values of the RI bit are further mapped to at least one of:~~.

23. The apparatus of claim 17, wherein the code is further executable by the at least one processor to cause the apparatus to: determine one or more relative resource indexes; and derive one or more of the set of one or more initial CS indexes implicitly based on the relative resource indexes~~, resource block (RB) indexes, orthogonal cover code (OCC) indexes, or shift indexes~~.

24. The apparatus of claim 17, wherein the one of the sixteen resources is at an edge of a system bandwidth.

30. 25. An apparatus for wireless communications, comprising:

means for transmitting at least one processor; and a memory coupled to the at least one processor, the memory comprising code executable by the at least one processor to cause the apparatus to: transmit a system information block (SIB), to another apparatus,a user equipment (UE), containing system information indicating, wherein values of bits of the system information indicate a resource set of a plurality of predefinedsixteen configured resource sets, each resource set containing a plurality ofsixteen resources;

means for transmitting downlink control information (DCI) on for physical downlinkuplink control channel (PDCCH) associated with a control channel element (CCE) index, to the another apparatus, containing resource indicator (RI) bits to indicate a resource of the plurality ofPUCCH) transmission, wherein the values of the bits of the system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the indicated resource set, and wherein the values of the bits of the system information further indicate a set of repetition factors for the PUCCH transmission, a set of RB indexes and a set of one or more orthogonal cover code (OCC) indexes for the PUCCH transmission; transmit downlink control information (DCI) on physical downlink control channel (PDCCH) associated with a control channel element (CCE) index, to the UE, containing resource indicator (RI) bits, wherein the CCE index and an explicit value of the RI bits together indicate a resource index, r, corresponding to one of the sixteen resources of the indicated resource set available for the UE to use for transmitting uplink control information (UCI) in the PUCCH transmission; and monitor the one of the sixteen resources for the PUCCH transmission.

26. The apparatus of claim 25, wherein the system information is provided via remaining system information (RMSI) bits.

27. The apparatus of claim 26, wherein: the RMSI bits comprise 4 bits, and the RI bits comprise 3 bits.

28. The apparatus of claim 25, wherein at least one of: the set of RB indexes for the sixteen resource sets comprises sets of 2 RBs, 4 RBs, and 8 RBs, or the set of one or

more OCC indexes indicates 1 or 2 OCCs.

29. The apparatus of claim 25, wherein: a first RB index is for a first hop of a frequency hopping pattern, and a second RB index is for a second hop of the frequency hopping pattern based on the frequency hopping pattern and the first RB index for the first hop.

30. The apparatus of claim 25, wherein: the resource index is indicated via a function of the values of the RI bits and the CCE index.

31. The apparatus of claim 30, wherein: the CS index is implicitly derived based on one or more relative resource indexes.

32. The apparatus of claim 25, wherein the one of the sixteen resources is at an edge of a system bandwidth.

33. A non-transitory computer readable medium storing computer executable code thereon for wireless communications, comprising: code for receiving a system information block (SIB) containing system information, wherein values of bits of the system information indicate a resource set of sixteen configured resource sets, each resource set containing sixteen resources for physical uplink control channel (PUCCH) transmission, wherein the values of the bits of the system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the indicated resource set, and wherein the values of the bits of the system information further indicate a set of repetition factors for the PUCCH transmission, a set of RB indexes and a set of one or more orthogonal cover code (OCC) indexes for the PUCCH transmission; code for receiving downlink control information (DCI) in a physical downlink control channel (PDCCH) containing resource indicator (RI) bits; code for determining a resource index, r, corresponding to one of the sixteen resources of the indicated resource set based on an explicit value of the RI bits and on a control channel element (CCE) index of the PDCCH; and code for transmitting uplink control information (UCI) in the PUCCH using the one of the sixteen resources.

34. A non-transitory computer readable medium storing computer executable code thereon for wireless communications, comprising: code for transmitting a system

information block (SIB), to a user equipment (UE), containing system information, wherein values of bits of the system information indicate a resource set of sixteen configured resource sets, each resource set containing sixteen resources for physical uplink control channel (PUCCH) transmission, wherein the values of the bits of the system information map to a number of symbols, a first symbol, and a set of one or more initial cyclic shift (CS) indexes corresponding to the indicated resource set, and wherein the values of the bits of the system information further indicate a set of repetition factors for the PUCCH transmission, a set of RB indexes and a set of one or more orthogonal cover code (OCC) indexes for the PUCCH transmission; code for transmitting downlink control information (DCI) on physical downlink control channel (PDCCH) associated with a control channel element (CCE) index, to the UE, containing resource indicator (RI) bits, wherein the CCE index and an explicit value of the RI bits together indicate a resource index, r, corresponding to one of the sixteen resources of the indicated resource set available for the UE to use for transmitting uplink control information (UCI) in ~~a physical uplink control channel (~~the PUCCH~~)~~ transmission; and

~~means~~ code for monitoring the ~~indicated resource~~one of the sixteen resources for the PUCCH transmission.