

【CLAIMS】

【Claim 1】 A method of receiving downlink control information by a user equipment, UE, in a wireless communication system, the method comprising:

receiving, via higher layer signaling, bundling information regarding resource element groups, REGs, each of the REGs corresponding to 1 resource block, RB, and 1 orthogonal frequency divisional multiplexing, OFDM, symbol;

performing blind detection for a physical downlink control channel, PDCCH, in a control resource set, CORESET, configured on a plurality of OFDM symbols; and

acquiring downlink control information, DCI, from the blind-detected PDCCH, wherein a control channel element to resource element group, CCE to REG, type for the CORESET is configured as an interleaved mapping type,

wherein in the blind detection for the PDCCH,

when the bundling information indicates a first value, the UE performs bundling such that only REGs locating on a same RB and corresponding to different OFDM symbols in the CORESET, are bundled as 1 REG bundle, and 1 REG bundle size is configured to be the same as a number of the plurality of OFDM symbols for configuring the CORESET, and

when the bundling information indicates a second value, the UE performs bundling such that the REGs locating on the same RB and corresponding to the different OFDM symbols are bundled as 1 REG bundle along with REGs locating on different RBs in the CORESET, and

wherein the UE performs the blind detection of the PDCCH by assuming same precoding for REGs which belong to a same REG bundle as a result of REG bundling.

【Claim 2】 The method according to claim 1, wherein when the bundling information indicates the second value, 1 REG bundle size is configured to be the same as a number of REGs included in 1 control channel element, CCE.

【Claim 3】 The method according to claim 1, wherein one or more CORESETs including the CORESET are configured in the UE; and

wherein the bundling information and the CCE to REG mapping type are indicated for each of the one or more CORESETs.

【Claim 4】 The method according to claim 1 or 3, wherein the bundling information includes bundle size information indicating a number of REGs included in 1 REG bundle.

【Claim 5】 The method according to claim 1, wherein interleaving for the CCE-to-REG mapping is performed in a unit of a REG bundle using an REG bundle index.

【Claim 6】 The method according to claim 1 or 3, wherein a supported bundle size is differently determined according to the CCE-to-REG mapping type.

【Claim 7】 The method according to claim 1,

wherein the bundling information includes at least one of intra-CCE bundle size information for bundling of REGs belonging to a same CCE and inter-CCE bundle size information for bundling of REGs belonging to different CCEs; and

wherein when the bundling information includes the inter-CCE bundle size information, the UE performs the blind detection for the PDCCH by assuming same precoding for REGs of different CCEs belonging to a same inter-CCE bundle.

【Claim 8】 The method according to claim 1,

wherein when the bundling information indicates the first value, the UE performs time domain REG bundling and,

wherein when the bundling information indicates the second value, the UE performs time-frequency domain REG bundling.

【Claim 9】 The method according to claim 1, wherein a number of the plurality of OFDM symbols for configuring the CORESET is 2 or 3.

【Claim 10】 The method according to claim 1, wherein the UE performs demodulation for the PDCCH by assuming that same precoding is applied to reference signals received through the REGs belonging to the same REG bundle.

【Claim 11】 A method of transmitting downlink control information by a base station, BS, in a wireless communication system, the method comprising:

transmitting, via higher layer signaling, bundling information regarding resource element groups, REGs, each of the REGs corresponding to 1 resource block, RB, and 1 orthogonal frequency divisional multiplexing, OFDM, symbol; and

transmitting downlink control information, DCI, through a physical downlink control channel, PDCCH, in a control resource set, CORESET, configured on a plurality of OFDM symbols,

wherein a control channel element to resource element group, CCE to REG, type for the CORESET is configured as an interleaved mapping type,

wherein in transmitting the DCI,

when the bundling information indicates a first value, the BS performs bundling such that only REGs locating on a same RB and corresponding to different OFDM symbols in the CORESET, are bundled as 1 REG bundle, and 1 REG bundle size is configured to be the same as a number of the plurality of OFDM symbols for configuring the CORESET, and

when the bundling information indicates a second value, the BS performs bundling such that the REGs locating on the same RB and corresponding to the different OFDM symbols are bundled as 1 REG bundle along with REGs locating on different RBs in the CORESET, and

wherein the BS transmits the DCI by applying same precoding for REGs belonging to a same REG bundle as a result of REG bundling.

【Claim 12】 A user equipment, UE, for receiving downlink control information, comprising;

a receiver; and

a processor to receive, via higher layer signaling by using the receiver, bundling information regarding resource element groups, REGs, each of the REGs corresponding to 1 resource block, RB, and 1 orthogonal frequency divisional multiplexing, OFDM, symbol, to perform blind detection for a physical downlink control channel, PDCCH, in a control resource set, CORESET, configured on a plurality of OFDM symbols, and to acquire downlink control information, DCI, from the blind-detected PDCCH,

wherein a control channel element to resource element group, CCE to REG, type for the CORESET is configured as an interleaved mapping type,

wherein in the blind detection for the PDCCH,

when the bundling information indicates a first value, the processor performs bundling such that only REGs locating on a same RB and corresponding to different OFDM symbols in the CORESET, are bundled as 1 REG bundle, and 1 REG bundle size is configured to be the same as a number of the plurality of OFDM symbols for configuring the CORESET, and

when the bundling information indicates a second value, the processor performs bundling such that the REGs locating on the same RB and corresponding to the different OFDM symbols are bundled as 1 REG bundle along with REGs locating on different RBs in the CORESET, and

wherein the processor performs the blind detection of the PDCCH by assuming same precoding for REGs which belong to a same REG bundle as a result of REG bundling.

【Claim 13】 A base station, BS, for transmitting downlink control information, comprising:

a transmitter; and

a processor to transmit, via higher layer signaling by using the transceiver, bundling information regarding resource element groups, REGs, each of the REGs corresponding to 1 resource block, RB, and 1 orthogonal frequency divisional multiplexing, OFDM, symbol, and to transmit downlink control information, DCI, through a physical downlink control channel, PDCCH, in a control resource set, CORESET, configured on a plurality of OFDM symbols,

wherein a control channel element to resource element group, CCE to REG, type for the CORESET is configured as an interleaved mapping type,

wherein in the transmission of the DCI,

when the bundling information indicates a first value, the processor performs bundling such that only REGs locating on a same RB and corresponding to different OFDM symbols in the CORESET, are bundled as 1 REG bundle, and 1 REG bundle size is configured to be the same as a number of the plurality of OFDM symbols for configuring the CORESET, and

when the bundling information indicates a second value, the processor performs bundling such that the REGs locating on the same RB and corresponding to the different OFDM symbols are bundled as 1 REG bundle along with REGs locating on different RBs in the CORESET, and

wherein the processor transmits the DCI by applying same precoding for REGs belonging to a same REG bundle as a result of REG bundling.