

CLAIMS

1. A method for wireless communications between a user equipment (UE) and a base station comprising a first processor of the UE in electrical communication with a memory of the UE, the first processor configured to obtain data from the memory in preparation for wireless communications, the method comprising:
 - (a) receiving from the base station, by a first transceiver circuit using one or more first antenna elements in electrical communication with the first transceiver circuit, a data transmission including downlink control information (DCI) for transmission of a codeword;
 - (b) determining a transport block size (TBS) for the data transmission based on a modulation and coding scheme (MCS) and a resource allocation (RA) for transmission of the codeword;
 - (c) determining, based on a code rate derived from the TBS and the RA, a base graph (BG), from which to derive a low density parity check (LDPC) code for use in decoding the codeword;
 - (d) receiving the codeword via resources of the RA; and
 - (e) decoding the codeword using the LDPC code derived from the selected BG.
2. The method of claim 1, wherein selecting the BG comprises selecting the BG from a set of two base graphs.
3. The method of claim 1, further comprising the steps of:
 - transmitting to the base station, by the first transceiver circuit of the UE, an indication that the UE did not receive the codeword;
 - receiving from the UE, by a second transceiver circuit of the base station using one or more second antenna elements in electrical communication with the second ~~transceiver~~transceiver circuit, the indication;
 - selecting, by a second processor of the base station, a second code rate for a retransmission of the bits of the codeword, wherein the selection is from a restricted set of code rates designed to ensure the UE selects a same BG to decode the retransmission; and
 - retransmitting, by the second transceiver circuit of the base station using the one or more second antenna elements of the base station and the second processor, the data bits in another codeword according to the selected second code rate.
4. ~~A method for wireless communications by a base station comprising a processor in electrical communication with a memory, the processor configured to obtain data from the memory in preparation for wireless communications, the method comprising:~~
 - ~~(a) selecting, based on a modulation and coding scheme (MCS) and a resource allocation (RA) of a transport block size (TBS) for transmitting a codeword, a base graph (BG) stored in said memory, from which to derive a low density parity check (LDPC) code for use in encoding data bits;~~
 - ~~(b) encoding, by an encoder circuit, the data bits to generate the codeword using the LDPC code derived from the selected BG; and~~
 - ~~(c) transmitting, by a transceiver circuit, the codeword using the MCS via resources of the RA using one or more antenna elements in electrical communication with the transceiver circuit.~~
5. ~~The method of claim 4, wherein selecting the BG comprises selecting the BG from a set of two base graphs.~~

6. — The method of claim 4, further comprising:
obtaining, by the transceiver circuit, an indication that a user equipment (UE) did not receive the codeword;
selecting a second code rate for a retransmission of the bits of the codeword, wherein the selection is from a restricted set of code rates designed to ensure the UE selects a same BG to decode the retransmission; and
retransmitting the data bits in another codeword according to the selected second code rate.

7. — The method of claim 6, wherein retransmitting the data bits comprises:
selecting a modulation and coding scheme (MCS) and a resource allocation (RA) for the retransmitting, based on the selected second code rate; and
transmitting, by the transceiver circuit, the second codeword using the selected MCS and via resources of the RA using the one or more antenna elements.

84. An apparatus for wireless communications, comprising:
a processor configured to:
(a) cause the apparatus to receive a data transmission including a downlink control information (DCI) from a base station for transmission of a codeword;
(b) determine a transport block size (TBS) for the data transmission based on a modulation and coding scheme (MCS) and resource allocation (RA) for transmission of the codeword;
(b) determining, based on a code rate derived from the TBS and the RA, a base graph (BG), from which to derive a low density parity check (LDPC) code for use in decoding the codeword;
(c) cause the apparatus to receive the codeword via resources of the RA; and
(d) decode the codeword using the LDPC code derived from the selected BG; and
a memory coupled with the processor.

95. The apparatus of claim 84, wherein the processor is configured to select the BG by selecting the BG from a set of two base graphs.

106. The apparatus of claim 84, the processor further configured to:
(a) transmit to the base station an indication that the UE did not receive the codeword; and
(b) receive a retransmission from the base station of the codeword, wherein the codeword is encoded by the base station employing a second code rate from a restricted set of code rates designed to ensure the UE selects the same BG to decode the retransmission.

11. — An apparatus for wireless communications, comprising a processor configured to:
(a) — select, based on a modulation and coding scheme (MCS) and a resource allocation (RA) of a transport block size for transmitting a codeword, a base graph (BG) from which to derive a low density parity check (LDPC) code for use in encoding data bits in the codeword;
(b) — encode the data bits to generate the codeword using the LDPC code derived from the selected BG; and
(c) — cause the apparatus to transmit the codeword using the MCS via resources of the RA; and
a memory coupled with the processor.

12. — The apparatus of claim 11, wherein the processor is configured to select the BG by selecting the BG from a set of two base graphs.

13. — The apparatus of claim 11, wherein the processor is further configured to:

~~obtain an indication that a user equipment (UE) did not receive the codeword;~~
~~select a second code rate for a retransmission of the bits of the codeword, wherein the selection is from a restricted set of code rates designed to ensure the UE selects a same BG to decode the retransmission; and~~
~~cause the apparatus to retransmit the data bits in another codeword according to the selected second code rate.~~

~~14. The apparatus of claim 13, wherein the processor is configured to cause the apparatus to retransmit the data bits by:~~

~~selecting a modulation and coding scheme (MCS) and a resource allocation (RA) for the retransmitting, based on the selected second code rate; and~~

~~causing the apparatus to transmit the second codeword using the selected MCS and via resources of the RA.~~