CLAIMS

1. A user equipment (UE), comprising:

a processor configured to generate an uplink Medium Access Control (MAC) protocol data unit (PDU) of a MAC sublayer;

a transmitter configured to transmit the uplink MAC PDU; and

a receiver configured to receive a downlink MAC PDU of the MAC sublayer, wherein

the uplink MAC PDU of the MAC sublayer has a difference in format from the downlink MAC PDU of the MAC sublayer, wherein the difference is a difference in positional relation of a MAC sub-PDU(s) including a MAC control element(s) (MAC CE(s)) with respect to MAC service data units (MAC SDUs),

the format of the downlink MAC PDU is a format in which MAC sub-headers with Logical Channel ID (LCID) fields are interlaced with the MAC SDUs,

the uplink MAC PDU includes (a) a Radio Link Control (RLC) PDU which includes a segment of an RLC SDU and (b) information indicating whether the segment includes the first byte of the RLC SDU, and

the uplink MAC PDU is generated such that an RLC header of the RLC PDU is placed before the segment.

2. The UE of claim 1, wherein the format of the uplink MAC PDU is such that the MAC sub-PDU(s) is/are placed after the MAC SDUs, and the format of the downlink MAC PDU is such that the MAC sub-PDU(s) is/are placed before the MAC SDUs.

3. A base Station, comprising:

a processor configured to generate a downlink Medium Access Control (MAC) protocol data unit (PDU) of a MAC sublayer;

a transmitter configured to transmit the downlink MAC PDU; and

a receiver configured to receive an uplink MAC PDU of the MAC sublayer, wherein

the uplink MAC PDU of the MAC sublayer has a difference in format from the downlink MAC PDU of the MAC sublayer, wherein the difference is a difference in positional relation of a MAC sub-PDU(s) including a MAC control element(s) (MAC CE(s)) with respect to MAC service data units (MAC SDUs),

the format of the downlink MAC PDU is a format in which MAC sub-headers with Logical Channel ID (LCID) fields are interlaced with the MAC SDUs,

the uplink MAC PDU includes (a) a Radio Link Control (RLC) PDU which includes a segment of an RLC SDU and (b) information indicating whether the segment includes the first byte of the RLC SDU, and

the uplink MAC PDU is such that an RLC header of the RLC PDU is placed before the segment.

4. The base station of claim 3, wherein the format of the uplink MAC PDU is such that the MAC sub-PDU(s) is/are placed after the MAC SDUs, and the format of the downlink MAC PDU is such that the MAC sub-PDU(s) is/are placed before the MAC SDUs.

5. A method performed by a user equipment (UE),comprising:

generating an uplink Medium Access Control (MAC) protocol data unit (PDU) of a MAC sublayer;

transmitting the uplink MAC PDU; and

receiving a downlink MAC PDU of the MAC sublayer, wherein

the uplink MAC PDU of the MAC sublayer has a difference in format from the downlink MAC PDU of the MAC sublayer, wherein the difference is a difference in positional relation of a MAC sub-PDU(s) including a MAC control element(s) (MAC CE(s)) with respect to MAC service data units (MAC SDUs),

the format of the downlink MAC PDU is a format in which MAC sub-headers with Logical Channel ID (LCID) fields are interlaced with the MAC SDUs,

the uplink MAC PDU includes (a) a Radio Link Control (RLC) PDU which includes a segment of an RLC SDU and (b) information indicating whether the segment includes the first byte of the RLC SDU, and

the uplink MAC PDU is generated such that an RLC header of the RLC PDU is placed before the segment.

6. A method performed by a base station, comprising:

generating a downlink Medium Access Control (MAC) protocol data unit (PDU) of a MAC sublayer;

transmitting the downlink MAC PDU; and

receiving an uplink MAC PDU of the MAC sublayer, wherein

the uplink MAC PDU of the MAC sublayer has a difference in format from the downlink MAC PDU of the MAC sublayer, wherein the difference is a difference in positional relation of a MAC sub-PDU(s) including a MAC control element(s) (MAC CE(s)) with respect to MAC service data units (MAC SDUs),

the format of the downlink MAC PDU is a format in which MAC sub-headers with Logical Channel ID (LCID) fields are interlaced with the MAC SDUs,

the uplink MAC PDU includes (a) a Radio Link Control (RLC) PDU which includes a segment of an RLC SDU and (b) information indicating whether the segment includes the first byte of the RLC SDU, and

the uplink MAC PDU is such that an RLC header of the RLC PDU is placed before the segment.