[0098] **FIG. 9** is a flowchart showing a data processing method in accordance with the present invention.

[0099] First, SRNC-RLC, which receives data from the upper layer, transforms the received data to the RLC-PDU and transmits the RLC-PDU to RNC-MAC-D protocol entity through the logical channel (MAC-D-Data-REQ primitive), such as the DTCH at step **901**.

[0100] The SRNC-RLC protocol entity generates the HARQ-RLC-Control-PDU by using information in a header of the RLC-PDU. At this time, the HARQ-RLC-Control-PDU includes a sequence number and a version number. The RNC-RLC protocol entity transmits the HARQ-RLC-Control-PDU to the RNC-MAC-D protocol entity through the logical channel (MAC-D-Data-REQ primitive), such as the DCCH at step **902**.

[0101] In case of using the same type of logical channel, the SRNC-RLC protocol entity transmits the HARQ-RLC-Control-PDU to the SRNC-MAC-D protocol entity through the logical channel (MAC-D-Data-REQ primitive), such as the DTCH.

[0102] Next, the SRNC-MAC-D protocol entity that receives the RLC-PDU through the logical channel (MAC-D-Data-REQ primitive), such as the DTCH, transmits the RLC-PDU by using MAC-C/SH-Data-REQ primitive at step **903**. At this time, the transmission type is a defined type in the Iur interface that defines an interface between the SRNC and the CRNC.

[0103] The SRNC-MAC-D protocol entity that receives the HARQ-RLC-Control-PDU through the logical channel (MAC-D-Data-REQ primitives), such as the DCCH, transmits the HARQ-RLC-Control-PDU protocol entity to CRNC-MAC-C/SH protocol entity by using the MAC-C/SH-Data-REQ primitive at step **904**. At this time, the transmission type is a defined type in the Iur interface that defines an interface between the SRNC and the CRNC.

[0104] In case of using the same type of logical channel, the SRNC-MAC-D protocol entity that receives the HARQ-RLC-Control-PDU through the logical channel (MAC-D-Data-REQ primitive), such as the DTCH, transmits the HARQ-RLC-Control-PDU to the CRNC-MAC-C/SH protocol entity by using the MAC-C/SH-Data-REQ primitive. At this time, the transmission type is a defined type in the Iur interface that defines an interface between the SRNC and the CRNC.

[0105] Meanwhile, the CRNC-MAC-C/SH protocol entity carries out DSCH transmission scheduling to transmit the RLC-PDU and the HARQ-RLC-Control-PDU by the transport channel, such as the DSCH, and allocates TFL1 and TFI2 to the RLC-PDU and the HARQ-RLC-Control-PDU, respectively, then transforms the RLC-PDU and the HARQ-RLC-Control-PDU to the MAC-PDU at step **905**. At this time, the MAC-PDU which transforms the RLC-PDU and the HARQ-RLC-Control-PDU are the MAC-PDU a and the MAC-PDU b, respectively.

[0106] The CRNC-MAC-C/SH protocol entity transmits the MAC-PDU a which has the RLC-PDU and the allocated TFI1 to the transport channel (PHY-Data-REQ primitive), such as the DSCH to the physical layer of the node B. At this time, the transmission type is defined an Iub interface that defines an interface between the RNC and the node B.

[0107] Also, the CRNC-MAC-C/SH protocol entity transmits the MAC-PDU b which has the HARQ-RLC-Control-PDU to the physical layer of the node B through the transport channel (PHY-Data-REQ primitive), such as the DSCH by using the allocated TFI1. At this time, the transmission form is defined as an Iub interface that defines an interface between the RNC and the node B.

[0108] After that, the physical layer of the node B transmits the MAC-PDU a and the MAC-PDU b which have the received RLC-PDU and the HARQ-RLC-Control-PDU, respectively to a user equipment (UE) after transforming them to the 10 ms radio frame through the coding, the interleaving and the modulation process **910** by using the physical channel, such as PDSCH at step **908**.

[0109] The physical layer of the node B transmits the received TFI1 and the TFI2 through the physical channel, such as the DPCH at step **909**.

[0110] UE-L1 of the receiver receives the 10 ms radio frame having the RLC-PDU and the HARQ-RLC-Control-PDU through the physical channel, such as the PDSCH, and receives the TFI1 and the TFI2 through the physical channel, such as the DPCH, then carries out the demodulating, the deinterleaving and the decoding process to the 10 ms radio frame having the TFI2 and the HARQ-RLC-Control-PDU to transform it to the MAC-PDU. The UE-L1 stores the 10 MS radio frame, which has the received TFI1 and the RLC-PDU, to the buffer and generates a data identifier to identify the 10 ms radio frame stored in the buffer. After that, the UE-L1 transmits the received MAC-PDU b and the data identifier to a UE-MAC-C/SH protocol entity through the transport channel (PHY-Data-IND primitive), such as the DSCH at step **910**.

[0111] After that, the UE-MAC-C/SH protocol entity transmits the HARQ-RLC-Control-PDU and the data identifier to a UE-MAC-D protocol entity after transforming the received MAC-PDU to the HARQ-RLC-Control-PDU by using MAC-C/SH-Data-IND primitive at step **911**.

[0112] The UE-MAC-D protocol entity transmits the HARQ-RLC-Control-PDU and the data identifier to a UE-RLC protocol entity through the logical channel (MAC-D-Data-IND primitive), such as the DCCH at step **912**. At this time, in case of using same type of logical channel, the UE-MAC-D protocol entity transmits the HARQ-RLC-Control-PDU and the data identifier to the UE-RLC protocol entity through the logical channel (MAC-D-Data-IND primitive), such as the DTCH.

[0113] The UE-RLC protocol entity extracts a sequence number and a version number by interpreting the received HARQ-RLC-Control-PDU. Also, the LE-RLC protocol entity transmits the data identifier, the sequence number and the version number to a UE-RRC protocol entity as a primitive of CRLC-HARQ-IND, by using a control SAP defined between the UE-RLC and the UE-RRC at step **913**.

[0114] After that, the UE-RRC protocol entity transmits CPHY-HARQ-REQ primitive, which has the received data identifier, the sequence number and the version number as a primitive parameter, to the UE-L1 by using a control SAP defined between the UE-L1 and the UE-RRC at step **914**.

[0115] Subsequently, the UE-L1 extracts the 10 ms radio frame, which has the RLC-PDU stored in the buffer, and