

CLAIMS

1. A method for radio link control, RLC, transmission, comprising:
 - receiving a first RLC protocol data unit, PDU, set from a sending-side RLC entity, wherein the first RLC PDU set is generated by the sending-side RLC entity according to a raw data segment;
 - responsive to detecting that multiple RLC PDUs in the first RLC PDU set are not successfully received, sending a status report containing an indication domain for sequence numbers, SNs, of the multiple RLC PDUs;
 - receiving a second RLC PDU set from the sending-side RLC entity; and
 - acquiring the raw data segment according to the first RLC PDU set and the second RLC PDU set.
2. The method of claim 1, wherein the multiple RLC PDUs comprise N segments of continuous RLC PDUs, and a number of the RLC PDUs in each segment of continuous RLC PDUs is smaller than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N NACK_SN_RANGE domains; the status report further comprises one control PDU type, CPT, domain and N NACK_SN domains; and
 - the CPT domain is used to indicate that the status report comprises the NACK_SN_RANGE domains, the N NACK_SN_RANGE domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_RANGE domain, each combinational domain is used to indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs, the NACK_SN domain in each combinational domain is used to indicate a maximum or minimum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_RANGE domain in each combinational domain is used to indicate a number of the RLC PDUs in the corresponding segment of continuous RLC PDUs.
3. The method of claim 1, wherein the multiple RLC PDUs are N segments of continuous RLC PDUs, and a number of RLC PDUs in each segment of continuous

RLC PDUs is greater than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N NACK_SN_END domains; the status report further comprises one CPT domain and N NACK_SN domains; and

the CPT domain is used to indicate that the status report comprises the NACK_SN_END domains, the N NACK_SN_END domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_END domain, each combinational domain is used to indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs,

wherein the NACK_SN domain in each combinational domain is used to indicate a maximum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_END domain in the combinational domain is used to indicate a minimum SN in the corresponding segment of continuous RLC PDUs,

or,

the NACK_SN domain in each combinational domain is used to indicate the minimum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_END domain in the combinational domain is used to indicate the maximum SN in the corresponding segment of continuous RLC PDUs.

4. The method of claim 1, wherein the multiple RLC PDUs comprise at least one discontinuous RLC PDU; the indication domain for the SNs of the multiple RLC PDUs is a bitmap domain; the status report further comprises one CPT domain and one NACK_SN domain; and

the CPT domain is used to indicate that the status report comprises the bitmap domains, the NACK_SN domain is used to indicate a maximum or minimum SN in the multiple RLC PDUs, the bitmap domains comprise M bits, the M bits correspond to M continuous RLC PDUs, the M RLC PDUs and the RLC PDU indicated by the NACK_SN domain at least comprise the multiple RLC PDUs, each bit is used to indicate whether a corresponding RLC PDU is successfully received, and the RLC PDU indicated by the NACK_SN domain is adjacent to the M RLC PDUs, M is a positive integer.

5. The method of any one of claims 1-4, wherein the status report further comprises a data/control, D/C, domain, an extended 1, E1, domain, an E2 domain and an E3 domain, the E1 domain is used to indicate whether there is any NACK_SN domain, ACK_SN_RANGE domain, E1 domain, E2 domain and E3 domain following the E1 domain, the E2 domain is used to indicate whether there is any NACK_SN_RANGE domain following the E2 domain, and the E3 domain is used to indicate whether there is any SOstart domain and SOend domain following the E3 domain.

6. The method of claim 5, wherein the status report further comprises an ACK_SN domain, an SOstart domain, and an SOend domain.

7. A method for radio link control, RLC, transmission, comprising:

sending a first RLC protocol data unit, PDU, set to a receiving-side RLC entity, wherein the first RLC PDU set is generated according to a raw data segment;

receiving a status report containing an indication domain for sequence numbers, SNs, of multiple RLC PDUs from the receiving-side RLC entity, wherein the status report is sent by the receiving-side RLC entity responsive to detecting that the multiple RLC PDUs in the first RLC PDU set are not successfully received; and

sending a second RLC PDU set to the receiving-side RLC entity, wherein the first RLC PDU set and the second RLC PDU set are used to acquire the raw data segment.

8. The method of claim 7, wherein the multiple RLC PDUs comprise N segments of continuous RLC PDUs, and a number of the RLC PDUs in each segment of continuous RLC PDUs is smaller than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N Negative Acknowledgement, NACK, _SN_RANGE domains; the status report further comprises a control PDU type, CPT, domain and N NACK_SN domains; and

the CPT domain is used to indicate that the status report comprises the NACK_SN_RANGE domains, the N NACK_SN_RANGE domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_RANGE domain, each combinational domain is used to

indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs, the NACK_SN domain in each combinational domain is used to indicate a maximum or minimum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_RANGE domain in each combinational domain is used to indicate a number of the RLC PDUs in the corresponding segment of continuous RLC PDUs.

9. The method of claim 7, wherein the multiple RLC PDUs are N segments of continuous RLC PDUs, and a number of the RLC PDUs in each segment of continuous RLC PDUs is greater than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N NACK_SN_END domains; the status report further comprises a CPT domain and N NACK_SN domains; and

the CPT domain is used to indicate that the status report comprises the NACK_SN_END domains, the N NACK_SN_END domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_END domain, each combinational domain is used to indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs,

wherein the NACK_SN domain in each combinational domain is used to indicate a maximum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_END domain in the combinational domain is used to indicate a minimum SN in the corresponding segment of continuous RLC PDUs,

or,

the NACK_SN domain in each combinational domain is used to indicate the minimum SN in the corresponding segment of continuous RLC PDUs, and the ANCK_SN_END domain in the combinational domain is used to indicate the maximum SN in the corresponding segment of continuous RLC PDUs.

10. The method of any one of claims 7-9, wherein the status report further comprises a data/control, D/C, domain, an extended 1, E1, domain, an E2 domain and an E3 domain, the E1 domain is used to indicate whether there is any NACK_SN domain, ACK_SN_RANGE domain, E1 domain, E2 domain and E3 domain following the E1 domain, the E2 domain is used to indicate whether there is any NACK_SN_RANGE

domain following the E2 domain , and the E3 domain is used to indicate whether there is any SOstart domain and SOend domain following the E3 domain .

11. A receiving-side radio link control, RLC, entity, comprising a processing unit and a communication unit, wherein

the processing unit is configured to:

receive, through the communication unit, a first RLC protocol data unit, PDU, set from a sending-side RLC entity, wherein the first RLC PDU set is generated by the sending-side RLC entity according to a raw data segment,

responsive to detecting that multiple RLC PDUs in the first RLC PDU set are not successfully received, send, through the communication unit, a status report containing an indication domain for sequence numbers, SNs, of the multiple RLC PDUs,

receive, through the communication unit, a second RLC PDU set from the sending-side RLC entity, and

acquire the raw data segment according to the first RLC PDU set and the second RLC PDU set.

12. The receiving-side RLC entity of claim 11, wherein the status report further comprises a data/control, D/C, domain, an extended 1, E1, domain, an E2 domain and an E3 domain, the E1 domain is used to indicate whether there is any NACK_SN domain, Acknowledgement, ACK, _SN_RANGE domain, E1 domain, E2 domain and E3 domain following the E1 domain, the E2 domain is used to indicate whether there is any NACK_SN_RANGE domain following the E2 domain, and the E3 domain is used to indicate whether there is any SOstart domain and SOend domain following the E3 domain.

13. The receiving-side RLC entity of claim 11, wherein the multiple RLC PDUs comprise N segments of continuous RLC PDUs, and a number of the RLC PDUs in each segment of continuous RLC PDUs is smaller than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N NACK_SN_RANGE domains; the status report further comprises one control PDU type, CPT, domain and N NACK_SN domains; and

the CPT domain is used to indicate that the status report comprises the

NACK_SN_RANGE domains, the N NACK_SN_RANGE domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_RANGE domain, each combinational domain is used to indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs, the NACK_SN domain in each combinational domain is used to indicate a maximum or minimum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_RANGE domain in each combinational domain is used to indicate a number of the RLC PDUs in the corresponding segment of continuous RLC PDUs.

14. The receiving-side RLC entity of claim 11, wherein the multiple RLC PDUs are N segments of continuous RLC PDUs, and a number of RLC PDUs in each segment of continuous RLC PDUs is greater than a preset number threshold, N is a positive integer; the indication domain for the SNs of the multiple RLC PDUs includes N NACK_SN_END domains; the status report further comprises one CPT domain and N NACK_SN domains; and

the CPT domain is used to indicate that the status report comprises the NACK_SN_END domains, the N NACK_SN_END domains and the N NACK_SN domains form N combinational domains, the N combinational domains comprise no repeated domains, each combinational domain comprises a NACK_SN domain and a NACK_SN_END domain, each combinational domain is used to indicate SNs of RLC PDUs in a corresponding segment of continuous RLC PDUs,

wherein the NACK_SN domain in each combinational domain is used to indicate a maximum SN in the corresponding segment of continuous RLC PDUs, and the NACK_SN_END domain in the combinational domain is used to indicate a minimum SN in the corresponding segment of continuous RLC PDUs,

or,

the NACK_SN domain in each combinational domain is used to indicate the minimum SN in the corresponding segment of continuous RLC PDUs, and the ANCK_SN_END domain in the combinational domain is used to indicate the maximum SN in the corresponding segment of continuous RLC PDUs.

15. The receiving-side RLC entity of claim 11, wherein the multiple RLC PDUs comprise at least one discontinuous RLC PDU; the indication domain for the SNs of the multiple RLC PDUs is a bitmap domain; the status report further comprises one CPT domain and one NACK_SN domain; and

the CPT domain is used to indicate that the status report comprises the bitmap domains, the NACK_SN domain is used to indicate a maximum or minimum SN in the multiple RLC PDUs, the bitmap domains comprise M bits, the M bits correspond to M continuous RLC PDUs, the M RLC PDUs and the RLC PDU indicated by the NACK_SN domain at least comprise the multiple RLC PDUs, each bit is used to indicate whether a corresponding RLC PDU is successfully received, and the RLC PDU indicated by the NACK_SN domain is adjacent to the M RLC PDUs, M is a positive integer.

16. The receiving-side RLC entity of claim 12, wherein the status report further comprises an ACK_SN domain, an SOstart domain, and an SOend domain.

17. A sending-side radio link control, RLC, entity, comprising a processing unit and a communication unit, wherein

the processing unit is configured to:

send, through the communication unit, a first RLC protocol data unit, PDU, set to a receiving-side RLC entity, wherein the first RLC PDU set is generated according to a raw data segment,

receive, through the communication unit, a status report containing an indication domain for sequence numbers, SNs, of multiple RLC PDUs from the receiving-side RLC entity, wherein the status report is sent by the receiving-side RLC entity responsive to detecting that the multiple RLC PDUs in the first RLC PDU set are not successfully received, and

send, through the communication unit, a second RLC PDU set to the receiving-side RLC entity, wherein the first RLC PDU set and the second RLC PDU set are used to acquire the raw data segment.

18. The sending-side RLC entity of claim 17, wherein the status report further comprises a data/control, D/C, domain, an extended 1, E1, domain, an E2 domain and

an E3 domain, the E1 domain is used to indicate whether there is any NACK_SN domain, ACK_SN_RANGE domain, E1 domain, E2 domain and E3 domain following the E1 domain, the E2 domain is used to indicate whether there is any NACK_SN_RANGE domain following the E2 domain, and the E3 domain is used to indicate whether there is any SOstart domain and SOend domain following the E3 domain.

19. The sending-side RLC entity of claim 17, wherein the multiple RLC PDUs comprise at least one discontinuous RLC PDU; the indication domain for the SNs of the multiple RLC PDUs is to a bitmap domain; the status report further comprises one CPT domain and one NACK_SN domain; and

the CPT domain is used to indicate that the status report comprises the bitmap domain, the NACK_SN domain is used to indicate a maximum or minimum SN in the multiple RLC PDUs, the bitmap domain comprises M bits, the M bits correspond to M continuous RLC PDUs one to one, the M RLC PDUs and the RLC PDU indicated by the NACK_SN domain at least comprise the multiple RLC PDUs, each bit is used to indicate whether a corresponding RLC PDU is successfully received , and the RLC PDU indicated by the NACK_SN domain is adjacent to the M RLC PDUs, where M is a positive integer.

20. The sending-side RLC entity of claim 18, wherein the status report further comprises an ACK_SN domain, an SOstart domain and an SOend domain.