CLAIMS

1. A wireless communication method for use in a wireless terminal, the method comprising:

determining whether a condition associated with using a configured uplink (UL) grant for retransmitting a small data transmission (SDT) message of an SDT is met, and

retransmitting, to a wireless network node, the SDT message by using the configured UL grant when the condition is met,

wherein the condition associated with using the configured grant for retransmitting the SDT message comprises that no acknowledge message corresponding to the SDT message is received before a first timer expires,

wherein the condition associated with using the configured grant for retransmitting the SDT message comprises that the SDT message has been transmitted by using the configured grant and has not been transmitted by using a dynamic grant scheduled with an identifier of the wireless terminal,

wherein the first timer is configured per configured UL grant and associated with an HARQ process ID of the corresponding configured UL grant, and

wherein the first timer associated with an HARQ process ID stops when the wireless terminal receives the acknowledge message or the non-acknowledge message in response to the SDT message transmission associated with the HARQ process ID.

2. The wireless communication method of claim 1, wherein the SDT message comprises at least one of:

a radio resource control message of initiating the SDT, or

a data message of the SDT.

3. The wireless communication method of claim 1, wherein the first timer associated with the HARQ process ID starts when the SDT message is transmitted by using the configured UL grant associated with the HARQ process ID.

4. The wireless communication of claim 1, wherein the retransmission of the SDT message and the first transmission of the SDT message have the same HARQ process ID.

5. A wireless terminal, comprising:

a processor, configured to:

determine whether a condition associated with using a configured uplink (UL) grant for retransmitting a small data transmission (SDT) message of an SDT is met, and

a communication unit, configured to:

retransmit, to a wireless network node, the SDT message by using the configured UL grant when the condition is met,

wherein the condition associated with using the configured grant for retransmitting the SDT message comprises that no acknowledge message corresponding to the SDT message is received before a first timer expires,

wherein the condition associated with using the configured grant for retransmitting the SDT message comprises that the SDT message has been transmitted by using the configured grant and has not been transmitted by using a dynamic grant scheduled with an identifier of the wireless terminal,

wherein the first timer is configured per configured UL grant and associated with an HARQ process ID of the corresponding configured UL grant, and

wherein the first timer associated with an HARQ process ID stops when the wireless terminal receives the acknowledge message or the non-acknowledge message in response to the SDT message transmission associated with the HARQ process ID.

6. The wireless terminal of claim 5, wherein the SDT message comprises at least one of: a radio resource control message of initiating the SDT, or a data message of the SDT.

7. The wireless terminal of claim 5, wherein the first timer associated with the HARQ process ID starts when the SDT message is transmitted by using the configured UL grant associated with the HARQ process ID.

8. A wireless communication method for use in a wireless network node, the method comprising:

receiving, by a wireless network node, a retransmission of a small data transmission, SDT, message by using a configured uplink, UL, grant when a wireless terminal has determined that a condition associated with using the configured UL grant for retransmitting a small data transmission, SDT, message of an SDT is met,

wherein the condition associated with using the configured grant for transmitting the SDT message comprises that no acknowledge message corresponding to the SDT message is received before a first timer expires,

wherein the condition associated with using the configured grant for transmitting the SDT message comprises that the SDT message has been transmitted by using the configured grant and has not been transmitted by using a dynamic grant scheduled with an identifier of the wireless terminal,

wherein the first timer is configured per configured UL grant and associated with an HARQ process ID of the corresponding configured UL grant, and

wherein the first timer associated with an HARQ process ID is stopped when the wireless terminal receives the acknowledge message or the non-acknowledge message in response to the SDT message transmission associated with the HARQ process ID.

9. The wireless communication method of claim 8, wherein the SDT message comprises at least one of:

a radio resource control message of the SDT, or

a data message of the SDT.

10. The wireless communication method of claim 8, wherein the first timer associated with the HARQ process ID starts when the SDT message is transmitted by using the configured UL grant associated with the HARQ process ID.

11. The wireless communication of claim 8, wherein the retransmission of the SDT message and the first transmission of the SDT message have the same HARQ process ID.