

CLAIMS

1. ~~A user terminal comprising:~~
~~a transmitting section that transmits uplink data~~
~~and uplink control information; and~~
~~a control section that determines a mapping pattern~~
~~for the uplink control information, while selecting at~~
~~least one of puncturing processing and rate matching~~
~~processing, based on at least one of the number of bits~~
~~of a receipt conformation signal included in the uplink~~
~~control information, an instruction from a base station~~
~~and a type of the uplink control information, in a case~~
~~of multiplexing the uplink data and the uplink control~~
~~information into an uplink shared channel to transmit a~~
processor that, when an uplink shared channel is used
to transmit a delivery acknowledgement signal (HARQ-ACK)
and an uplink data (UL-SCH), controls a mapping of the
delivery acknowledgement signal based on whether bundling
is applied to the delivery acknowledgement signal and
based on a number of bits of the delivery acknowledgement
signal; and
a transmitter that transmits the delivery
acknowledgement signal and the uplink data,
wherein, when the bundling is applied, if the number
of bits of the delivery acknowledgement signal after the
bundling is less than or equal to 2 bits, the processor
maps the delivery acknowledgement signal to a first
resource for puncturing, and if the number of bits of

the delivery acknowledgement signal after the bundling exceeds 2 bits, the processor maps the delivery acknowledgement signal to a second resource for rate matching.

2. ~~The user-terminal according to claim 1, wherein in a case where the number of bits of the delivery acknowledgement signal is the predetermined number of bits or less, the control section selects the puncturing processing, and as the mapping pattern, selects a first mapping pattern~~the processor controls the mapping of the delivery acknowledgement signal based on whether a plurality of code words are scheduled by a single downlink control information.

3. ~~The user-terminal according to claim 21, wherein in a case where the number of bits of the delivery acknowledgement signal exceeds the predetermined number of bits, the control section selects the rate matching processing, and as the mapping pattern, selects a second mapping pattern different from the first mapping pattern~~wherein, when the bundling is applied, the processor determines whether to apply puncturing or rate matching on the uplink data based on the number of bits of the delivery acknowledgment signal after the bundling.

4. ~~The user terminal according to claim 2, wherein in a case where the number of bits of the delivery acknowledgement signal exceeds the predetermined number of bits, the control section selects the puncturing processing and the rate matching processing, and as the mapping pattern, selects a third mapping pattern including the first mapping pattern~~wherein, when the bundling is applied, the processor determines whether to apply puncturing or rate matching on an uplink transport block based on the number of bits of the delivery acknowledgment signal after the bundling.

5. ~~The user terminal according to claim 1, wherein based on an uplink control channel format, the control section determines a mapping pattern for the uplink control information, while selecting at least one of the puncturing processing and the rate matching processing.~~

65. A radio communication method in a user terminal, including comprising:

~~transmitting uplink data and uplink control information; and~~

~~determining a mapping pattern for the uplink control information, while selecting at least one of puncturing processing and rate matching processing, based on at least one of the number of bits of a receipt conformation signal included in the uplink control information, an~~

~~instruction from a base station and a type of the uplink control information, in a case of multiplexing the uplink data and the uplink control information into an uplink shared channel to transmit~~

when an uplink shared channel is used to transmit a delivery acknowledgement signal (HARQ-ACK) and an uplink data (UL-SCH), controlling a mapping of the delivery acknowledgement signal based on whether bundling is applied to the delivery acknowledgement signal and based on a number of bits of the delivery acknowledgement signal;

transmitting the delivery acknowledgement signal and the uplink data; and

when the bundling is applied, if the number of bits of the delivery acknowledgement signal after the bundling is less than or equal to 2 bits, mapping the delivery acknowledgement signal to a first resource for puncturing, and if the number of bits of the delivery acknowledgement signal after the bundling exceeds 2 bits, mapping the delivery acknowledgement signal to a second resource for rate matching.

6. A base station comprising:

a processor that, when an uplink shared channel is used to receive a delivery acknowledgement signal (HARQ-ACK) and an uplink data (UL-SCH), determines the delivery acknowledgement signal whose mapping is

controlled based on whether bundling is applied to the delivery acknowledgement signal and based on a number of bits of the delivery acknowledgement signal; and
a receiver that receives the delivery acknowledgement signal and the uplink data,
wherein, when the bundling is applied, if the number of bits of the delivery acknowledgement signal after the bundling is less than or equal to 2 bits, the delivery acknowledgement signal is mapped to a first resource for puncturing, and if the number of bits of the delivery acknowledgement signal after the bundling exceeds 2 bits, the delivery acknowledgement signal is mapped to a second resource for rate matching.

7. A system comprising a terminal and a base station:

the terminal comprises:

a processor that, when an uplink shared channel is used to transmit a delivery acknowledgement signal (HARQ-ACK) and an uplink data (UL-SCH), controls a mapping of the delivery acknowledgement signal based on whether bundling is applied to the delivery acknowledgement signal and based on a number of bits of the delivery acknowledgement signal; and

a transmitter that transmits the delivery acknowledgement signal and the uplink data,

wherein, when the bundling is applied, if the

number of bits of the delivery acknowledgement signal after the bundling is less than or equal to 2 bits, the processor maps the delivery acknowledgement signal to a first resource for puncturing, and if the number of bits of the delivery acknowledgement signal after the bundling exceeds 2 bits, the processor maps the delivery acknowledgement signal to a second resource for rate matching, and

the base station comprises:

a processor that, when the uplink shared channel is used to receive the HARQ-ACK and the uplink data, determines the delivery acknowledgement signal whose mapping is controlled based on whether bundling is applied to the delivery acknowledgement signal and based on the number of bits of the delivery acknowledgement signal; and

a receiver that receives the delivery acknowledgement signal and the uplink data.