

CLAIMS

1. A communication apparatus, comprising:
signal generation circuitry which, in operation, generates a control signal including a plurality of user specific fields, each of the plurality of user specific fields including an Association ID (AID) subfield for specifying a corresponding terminal station, and a resource unit allocation subfield indicating at least one resource unit available for the corresponding terminal station; and
transmission circuitry which, in operation, transmits the control signal, wherein one of a plurality of AIDs for scheduled access or one of a plurality of random access IDs for random access is assigned to the AID subfield in each of the plurality of user specific fields, values for the plurality of random access IDs are different from any of values of the plurality of the AIDs for the scheduled access, and each value of the plurality of random access IDs indicates a type of a terminal station which can perform random access to the at least one resource unit.
2. The communication apparatus according to claim 1, wherein one of the plurality of random access IDs indicates a terminal station not associated with the communication apparatus.
3. The communication apparatus according to claim 1, wherein values for the plurality of random access IDs include at least one of 0 and an integer from 2008 to 2047.
4. The communication apparatus according to claim 1, wherein when one of the plurality of random access IDs is assigned to the AID subfield, the resource unit allocation subfield corresponding to the AID subfield indicates one or more resource units which can be accessed by a terminal station specified by the AID subfield through random access, and the specified terminal station randomly selects one resource unit from the indicated one or more resource units which can be accessed through random access.
5. The communication apparatus according to claim 1, wherein the control signal includes a user common field, and the user common field includes a trigger

type subfield indicating a type of the control signal.

6. The communication apparatus according to claim 1, wherein the user specific field includes Target RSSI subfield indicating target reception power of a signal transmitted in response to the control signal.

7. The communication apparatus according to claim 1, wherein when one of the plurality of random access IDs is allocated to the AID subfield, the user specific field including the allocated random access ID includes a subfield to which a value corresponding to a Traffic class indicating a traffic type of information transmitted through random access is allocated.

8. The communication apparatus according to claim 1, wherein each value of the plurality of random access IDs is associated with communication condition information between the communication apparatus and the terminal station, and the communication condition information indicating at least one of uplink transmission buffer amount, path loss, reception quality, RSSI and interference power.

9. The communication apparatus according to claim 1, wherein each value of the plurality of random access IDs is associated with a type of information transmitted through random access, a transmission power class of the terminal station, or setting accuracy of transmission power required for the terminal station.

10. A terminal station, comprising:

signal receiving circuitry which, in operation, receives a control signal including a plurality of user specific fields, each of the plurality of user specific fields including an Association ID (AID) subfield for specifying a corresponding terminal station, and a resource unit allocation subfield indicating at least one resource unit available for the corresponding terminal station; and

selection circuitry which, in operation, randomly selects one resource unit from the at least one resource unit indicated by a corresponding resource unit allocation subfield when the received control signal includes the user specific field including AID subfield to which one of the plurality of random access IDs is

allocated,

transmission circuitry which, in operation, transmits an uplink signal by using the selected one resource unit, wherein values for the plurality of random access IDs are different from any of values of the plurality of the AIDs for the scheduled access, and each value of the plurality of random access IDs indicates a type of a terminal station which can perform random access to the at least one resource unit.

11. The terminal station according to claim 10, wherein one of the plurality of random access IDs indicates a terminal station not associated with the communication apparatus.

12. The terminal station according to claim 10, wherein the values for plurality of random access IDs include at least one of 0 and an integer from 2008 to 2047.

13. The terminal station according to claim 10, wherein the control signal includes a user common field, and the user common field includes a trigger type subfield indicating a type of the control signal.

14. The terminal station according to claim 10, wherein the user specific field includes Target RSSI subfield indicating target reception power of a signal transmitted in response to the control signal.

15. The terminal station according to claim 10, wherein when one of the plurality of random access IDs is allocated to the AID subfield, the user specific field including the allocated random access ID includes a subfield to which a value corresponding to a Traffic class indicating a traffic type of information transmitted through random access is allocated.

16. The terminal station according to claim 10, wherein each value of the plurality of random access IDs is associated with communication condition information between the communication apparatus and the terminal station, and the communication condition information indicating at least one of uplink transmission buffer amount, path loss, reception quality, RSSI and interference

power.

17. The terminal station according to claim 10, wherein each value of the plurality of random access IDs is associated with a type of information transmitted through random access, a transmission power class of the terminal station, or setting accuracy of transmission power required for the terminal station.

18. The terminal station according to claim 10, wherein in PS-mode, when the control signal including one of the plurality of random access IDs is received, the PS-Poll requesting DL Data is transmitted to the communication apparatus.

19. A communication method, comprising:

generating a control signal including a plurality of user specific fields, each of the plurality of user specific fields including an Association ID (AID) subfield for specifying a corresponding terminal station, and a resource unit allocation subfield indicating at least one resource unit available for the corresponding terminal station; and

transmitting the control signal, wherein one of a plurality of AIDs for scheduled access or one of a plurality of random access IDs for random access is assigned to the AID subfield in each of the plurality of user specific fields, values for the plurality of random access IDs are different from any of values of the plurality of the AIDs for the scheduled access, and each value of the plurality of random access IDs indicates a type of a terminal station which can perform random access to the at least one resource unit.

20. A communication method, comprising:

receiving a control signal including a plurality of user specific fields, each of the plurality of user specific fields including an Association ID (AID) subfield for specifying a corresponding terminal station, and a resource unit allocation subfield indicating at least one resource unit available for the corresponding terminal station; and

randomly selecting one resource unit from the at least one resource unit indicated by a corresponding resource unit allocation subfield when the received control signal includes the user specific field including AID subfield to which one of

the plurality of random access IDs is assigned

transmitting an uplink signal by using the selected one resource unit, wherein values for the plurality of random access IDs are be different from any of values of the plurality of the AIDs for the scheduled access, and each value of the plurality of random access IDs indicates a type of a terminal station which can perform random access to the at least one resource unit.