Japanese Patent Application Laid-Open No.2012-90013

Non-Patent Literatures

[0005]

NPL 1

RP-181726, “Revised WID on New Radio Access Technology”

NPL 2

RP-181339, “Revised SID on NR-based Access to Unlicensed Spectrum”

NPL 3

ETSI EN 301 893 V2.1.1

NPL 4

3GPP TS 38.101-1 V15.3.0

NPL 5

“Block-Interleaved Frequency Division Multiple Access and its Application in the Uplink of Future Mobile Radio Systems”, T. Frank

NPL 6

“LTE for 4G Mobile Broadband”, F. Khan

NPL 7

3GPP TS 38.211 V15.3.0

Summary

[0006] With regard to the operation in the unlicensed band, however, methods of transmitting and receiving signals are not yet sufficiently studied.

[0006a] In an aspect, the present disclosure refers to a communication apparatus, comprising:

a receiver, which, in operation, receives resource assignment information indicating a set of interlace indices of a plurality of sets of interlace indices including index sets {#i} and {#i, #j} where i and j are integers larger than or equal to 0; and

a transmitter, which, in operation, transmits an uplink signal on first resource blocks (RBs) within a band,

wherein, a number of the first RBs is the largest integer which is based on one or more specific prime numbers that are two, three and five and which is not greater than a number of second RBs, wherein the number of second RBs is not based on the one or more specific prime numbers and is indicated by the set of interlace indices.

[0006b] In an aspect, the present disclosure refers to a communication method, comprising:

receiving resource assignment information indicating a set of interlace indices of a plurality of sets of interlace indices including index sets {#i} and {#i, #j} where i and j are integers larger than or equal to 0; and

transmitting an uplink signal on first resource blocks (RBs) within a band,

wherein, a number of the first RBs is the largest integer which is based on one or more specific prime numbers that are two, three and five and which is not greater than a number of second RBs, wherein the number of second RBs is not based on the one or more specific prime numbers and is indicated by the set of interlace indices.

[0007] One non-limiting example facilitates providing a mobile station, a base station, a transmission method, and a reception method that are able to appropriately transmit and receive signals in the operation in the unlicensed band.

[0008] A mobile station according to one example of the present

disclosure includes: transmission circuitry, which, in operation, transmits an uplink signal; and control circuitry, which, in operation, when a first number indicating an amount of a first resource usable in transmitting the uplink signal includes, as a prime factor, a third number different from a specific second number, controls transmission of a fourth number of signals, the transmission being performed using a second resource, the fourth number not including the third number as a prime factor.

[0009] A base station according to one example of the present disclosure includes: reception circuitry, which, in operation, receives an uplink signal; and control circuitry, which, in operation, when a first number indicating an amount of a first resource usable in transmitting the uplink signal includes, as a prime factor, a third number different from a specific second number, controls reception of a fourth number of signals, the reception being performed using second resources, the fourth number not including the third number as a prime factor.

[0010] A transmission method according to one example of the present disclosure includes: configuring, when a first number indicating an amount of a first resource usable in transmitting an uplink signal includes, as a prime factor, a third number different from a specific second number, the fourth number not including the third number as a prime factor; and controlling transmission of the fourth number of signals, the transmission being performed using a second resource.

[0011] A reception method according to one example of the present disclosure includes: configuring, when a first number indicating an amount of a first resource usable in transmitting an uplink signal includes, as a prime factor, a third number different from a specific second number, a fourth number not including the third number as a prime factor; and controlling reception of the fourth number of signals, the reception being performed using a second resource.

[0012] A base station according to one example of the present disclosure

includes: reception circuitry, which, in operation, receives an uplink signal; and control circuitry, which, in operation, decides a first resource usable in transmitting the uplink signal, and controls a reception process of the uplink signal, the reception process being performed using the first resource, in which: the first resource has one or more bands positioned at a predetermined spacing among a plurality of bands that are obtained by dividing a predetermined frequency band, and the control circuitry configures the one or more bands in the first resource such that a number indicating an amount of resource included in the first resource does not include, as a prime factor, a third number different from a specific second number.

[0013] A mobile station according to one example of the present disclosure includes: transmission circuitry, which, in operation, transmits a signal; and control circuitry, which, in operation, controls a transmission process of the signal, the transmission process being performed using usable a first resource, in which: the first resource has one or more bands positioned at a predetermined spacing among a plurality of bands that are obtained by dividing a predetermined frequency band, at least part of the plurality of bands has a different band width from remaining part, and a number indicating an amount of resource included in the first resource does not include, as a prime factor, a third number different from a specific second number.

[0014] It should be noted that general or specific embodiments may be implemented as a system, , an apparatus, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[0015] According to one example of the present disclosure, signals can be appropriately transmitted and received in the operation in the unlicensed band.

[0016] Additional benefits and advantages of the disclosed embodiments will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various embodiments and features of the specification and