

AMENDED CLAIMS

1. A method of allocating a portion of frequency spectrum in a wireless local area network, comprising:

identifying a plurality of equal-size sub-bands making up the portion of frequency spectrum;

identifying which of the plurality of sub-bands are available;

generating a bit representation of an allocation of resource units within the portion of frequency spectrum for use by a target station, the bit representation consisting of a plurality of binary values, each binary value indicating the availability or unavailability of one or more sub-bands;

generating a physical layer protocol data unit, the physical layer protocol data unit comprising a header, the header including a universal signal field,

the universal signal field comprising the bit representation; and

transmitting the physical layer protocol data unit to a target station.

2. The method of Claim 1, wherein:

the portion of frequency spectrum being allocated is an operating channel;

each sub-band has a bandwidth of 20 MHz; and

each binary value indicates an unavailable sub-band or an available one or more sub-bands capable of supporting a single-user large-size resource unit.

3. The method of Claim 2, wherein:

the operating channel consists of one to four sub-blocks of the operating channel, each sub-block of the operating channel consisting of four 20 MHz sub-bands; and

the bit representation consists of, for each sub-block of the operating channel, a corresponding sub-block representation, each sub-block representation consisting of one or more binary values.

4. The method of any one of Claims 1 to 3, wherein:

each binary value is two bits, having four possible values; and

each binary value corresponds to an unavailable 20 MHz sub-band or the size of an available one or more contiguous 20 MHz sub-bands.

5. The method of Claim 4, wherein:

the four possible values correspond to:

an unavailable sub-band;

an available sub-band;

two contiguous available sub-bands; and

four contiguous available sub-bands.

6. The method of any one of Claims 1 to 3, wherein:

each binary value is one bit; and

each binary value corresponds to an unavailable 20 MHz sub-band or an available 20 MHz sub-band.

7. The method of Claim 6, wherein:

a binary value of "0" indicates an unavailable 20 MHz sub-band; and
a binary value of "1" indicates an available 20 MHz sub-band.

8. A method, comprising:

receiving, over a wireless local area network, a physical layer protocol data unit, the physical layer protocol data unit comprising a header,

the header including a universal signal field,

the universal signal field comprising a bit representation;

identifying the availability of the sub-bands to which resource units can be allocated within a portion of frequency spectrum based on the bit representation, the bit representation consisting of a plurality of binary values, each binary value indicating the availability or unavailability of one or more sub-bands of a plurality of equal-size sub-bands making up the portion of frequency spectrum; and

communicating over the wireless local area network using one or more of the resource units.

9. The method of Claim 8, wherein:

the portion of frequency spectrum being allocated is an operating channel;

each sub-band has a bandwidth of 20 MHz; and

each binary value indicates an unavailable sub-band or an available one or more sub-bands capable of supporting a single-user resource unit.

10. The method of Claim 9, wherein:

the operating channel consists of one to four sub-blocks of the operating channels, each sub-block of the operating channel consisting of four sub-bands; and

the bit representation consists of, for each sub-block of the operating channel, a corresponding sub-block representation, each sub-block representation consisting of one or more binary values.

11. The method of any one of Claims 8 to 10, wherein:

each binary value is two bits, having four possible values; and

each binary value corresponds to an unavailable 20 MHz sub-band or the size of an available one or more contiguous 20 MHz sub-bands

12. The method of Claim 11, wherein:

the four possible values correspond to:

an unavailable sub-band;

an available sub-band;

two contiguous available sub-bands; and

four contiguous available sub-bands.

13. The method of any one of Claims 8 to 10, wherein:

each bit of the bit representation corresponds to an unavailable sub-band or an available sub-band.

14. The method of Claim 13, wherein:

a binary value of "0" indicates an unavailable 20 MHz sub-band; and
a binary value of "1" indicates an available 20 MHz sub-band.

15. A station enabled for use in a wireless area local area network (WLAN),
the station being configured to perform the method of any one of Claims 1 to
14.

16. A processing system, comprising:

a processing device;
a wireless network interface for wireless communication with a
network; and
a memory,
the memory having stored thereon executable instructions that, when
executed by the processing device, implement a communication module
configured to perform the method of any one of Claims 1 to 14 using the
wireless network interface.