CLAIMS

[Claim 1]

A wireless communication device comprising:

a receiver that receives, from a transmission apparatus, a physical layer protocol data unit including a legacy preamble, a legacy header, a non-legacy header, and a data field, the non-legacy header including a field regarding a channel bandwidth, wherein the legacy header and the non-legacy header are encoded by the transmission apparatus into a first codeword of the physical layer protocol data unit; and

a decoder that performs error correction decoding on the first codeword of the received physical layer protocol data unit to detect the legacy header and the non-legacy header.

[Claim 2]

The wireless communication device according to Claim 1, wherein the non-legacy header includes identification information field indicating that the non-legacy header is included in the physical layer protocol data unit, and the identification information field is format identification information field included in a top portion of the non-legacy header.

[Claim 3]

The wireless communication device according to Claim 1, wherein the non-legacy header is disposed immediately after the legacy header in the physical layer protocol data unit.

[Claim 4]

The wireless communication device according to Claim 2, wherein the format identification information field and the field regarding the channel bandwidth are individually described in the non-legacy header.

[Claim 5]

The wireless communication device according to Claim 2, wherein the format identification information field and the information regarding the channel bandwidth are jointly described in a single field in the non-legacy header.

[Claim 6]

The wireless communication device according to Claim 5, wherein each of the format identification information field and the field regarding the channel bandwidth is described in the non-legacy header by using a sequence, and the

sequence is selected from among a plurality of sequences predefined in accordance with a plurality of channel bandwidths.

[Claim 7]

The wireless communication device according to Claim 1, comprising a demodulator that demodulates the received physical layer protocol data unit; and wherein the decoder performs the error correction decoding on the first codeword of the physical layer protocol data unit that is demodulated by the demodulator.

[Claim 8]

The wireless communication device according to Claim 1, comprising a descrambler that performs descrambling on the physical layer protocol data unit, after the error correction decoding is performed by the decoder, wherein the descrambling is not performed on the identification information field.

[Claim 9]

The wireless communication device according to Claim 1, comprising a demodulator that demodulates the received physical layer protocol data unit; and

wherein the demodulator demodulates the non-legacy header by using a first phase that differs from a second phase used to demodulate one of the legacy preamble and the legacy header.

[Claim 10]

A wireless communication method comprising:

receiving, from a transmission apparatus, a physical layer protocol data unit including a legacy preamble, a legacy header, a non-legacy header, and a data field, the non-legacy header including a field regarding a channel bandwidth, wherein the legacy header and the non-legacy header are encoded by the transmission apparatus into a first codeword of the physical layer protocol data unit; and

performing error correction decoding on the first codeword of the received physical layer protocol data unit to detect the legacy header and the non-legacy header.