CLAIMS

1. A transmitter comprising:

a first transmission block that generates a first radio wave having an information signal modulated thereon and having a plane of polarization that rotates; and

a second transmission block that generates a second radio wave having the information signal modulated thereon and having a plane of polarization that is fixed,

wherein the first transmission block comprises a first superimposing circuit that causes a first orthogonal code to be superimposed on the first radio wave, the first orthogonal code being a spreading code,

wherein the second transmission block comprises a second superimposing circuit that causes a second orthogonal code to be superimposed on the second radio wave, the second orthogonal code being orthogonal to the first orthogonal code, and

wherein the first transmission block and the second transmission block respectively generate the first radio wave and the second radio wave at the same time.

2. The transmitter of claim 1,

wherein the second transmission block causes a third orthogonal code to be superimposed on the second radio wave, the third orthogonal code being orthogonal to the first orthogonal code and the second orthogonal code.

3. The transmitter of claim 1, further comprising a plurality of transmission antennas whose planes of polarizations are spatially orthogonal to one another,

wherein the first transmission block generates the first radio wave via the plurality of transmission antennas, and

wherein the second transmission block generates the second radio wave via the plurality of transmission antennas.

4. The transmitter of claim 1,

wherein the first transmission block uses a plurality of carrier frequencies to generate the first radio wave, such that the first radio wave has a plane of polarization that rotates at a rotational frequency depending on the plurality of carrier frequencies, and

wherein the second transmission block uses the plurality of carrier frequencies to generate the second radio wave.

5. The transmitter of claim 1,

wherein the first transmission block comprises:

a polarization plane rotating oscillator that oscillates at a frequency corresponding to a rotational frequency of the plane of polarization of the first radio wave, and

a carrier oscillator that oscillates at a frequency corresponding to a carrier frequency of the first radio wave, and

wherein the second radio wave has a component with a frequency equal to the sum of the carrier frequency and the

rotational frequency and has a component with a frequency equal to the difference between the carrier frequency and the rotational frequency.

6. The transmitter of claim 1,

wherein the first transmission block comprises:

a first sine oscillator that generates a sine wave of a first frequency;

a first cosine oscillator that generates a cosine wave of the first frequency;

a second sine oscillator that generates a sine wave of a second frequency; and

a second cosine oscillator that generates a cosine wave of the second frequency,

wherein the plane of polarization of the first radio wave rotates at a rotational frequency equal to half the difference between the first and second frequencies, and

wherein the second radio wave has a component with a carrier frequency equal to the first frequency and a component with a carrier frequency equal to the second frequency.

7. The transmitter of claim 1, further comprising:

an information signal generator that generates the information signal;

a synchronization signal generating circuit that generates a synchronization signal; and

a signal switching circuit that selects one of the information signal and the synchronization signal, and passes the selected signal to the first transmission block and the second transmission block.

8. A receiver comprising:

a first receive section that demodulates a first radio wave having an information signal modulated thereon and having a plane of polarization that rotates, the first radio wave containing a component of the information signal spread with a first orthogonal code, the first orthogonal code being a spreading code;

a second receive section that demodulates a second radio wave having the information signal modulated thereon and having a plane of polarization that is fixed, the second radio wave containing a component of the information signal spread with a second orthogonal code, the second orthogonal code being a spreading code and being orthogonal to the first orthogonal code;

a first despreading section that despreads the result of the demodulation by the first receive section with the first orthogonal code; and

a second despreading section that despreads the result of the demodulation by the second receive section with the second orthogonal code,

wherein the receiver restores the information signal on the basis of the result of reception by the first receive section and the second receive section.

9. The receiver of claim 8,

wherein the second radio wave further contains a component of the information signal spread with a third orthogonal code, the third orthogonal code being a spreading code and being orthogonal to the first orthogonal code and the second orthogonal code, and

wherein the receiver further comprises a third despreading section that despreads the result of the demodulation by the second receive section with the third orthogonal code.

10. The receiver of claim 8, further comprising a plurality of reception antennas whose planes of polarization are spatially orthogonal to one another,

wherein the first receive section receives the first radio wave via one of the plurality of reception antennas, and

wherein the second receive section receives the second radio wave via the one and another of the plurality of reception antennas.

11. The receiver of claim 10,

wherein the first receive section and the second receive section receive the first radio wave and the second radio wave at the same time.

12. The receiver of claim 8, further comprising

a restoration section that restores the information signal on the basis of the difference between an output signal of the

first despreading section and an output signal of the second despreading section.

13. The receiver of claim 8, further comprising:

three or more reception antennas whose planes of polarization are spatially orthogonal; and

a polarization rotation circuit that applies weighting on reception signals of the three or more reception antennas to output two pseudo reception signals,

wherein the first receive section receives one of the two pseudo reception signals as the first radio wave, and

wherein the second receive section receives both of the two pseudo reception signals as the second radio wave.