CLAIMS

1. A transmission method executed by a transmission apparatus, the transmission method comprising:

generating a plurality of first transmission symbols z1 and a plurality of second transmission symbols z2 for each slot by using any one of N matrices F[i] with respect to a plurality of first modulated symbols s1 and a plurality of second modulated symbols s2, the plurality of first modulated symbols s1 being generated for each slot, the plurality of second modulated symbols s2 being generated for each slot, N being an integer that is two, the N matrices F[i] being regularly switched with two slots as one cycle, the N matrices F[i] satisfy

$$\mathbf{F}[i]=\frac{1}{\sqrt{2}}\begin{pmatrix} e^{j0} & e^{j0} \\ e^{j\frac{i\pi}{4}} & e^{j\left(\frac{i\pi}{4}+\pi\right)} \end{pmatrix}$$

i = 0, 2;

transmitting one or more first OFDM symbols including the plurality of first transmission signals z1 from a first antenna; and

transmitting one or more second OFDM symbols including the plurality of second transmission symbols z2 from a second antenna, the one or more first OFDM symbols and the one or more second OFDM symbols that are transmitted at a same frequency and time.

2. A transmission apparatus comprising:

signal processing circuitry that generates a plurality of first transmission symbols z1 and a plurality of second transmission symbols z2 for each slot by using any one of N matrices F[i] with respect to a plurality of first modulated symbols s1 and a plurality of second modulated symbols s2, the plurality of first transmission symbols z1 being generated for each slot, the plurality of second transmission symbols z2 being generated for each slot, N being an integer that is two, the N matrices F[i] being regularly switched with two slots as one cycle,

the N matrices F[i] satisfy

$$\mathbf{F}[i]=\frac{1}{\sqrt{2}}\begin{pmatrix} e^{j0} & e^{j0} \\ e^{j\frac{i\pi}{4}} & e^{j\left(\frac{i\pi}{4}+\pi\right)} \end{pmatrix}$$

i = 0, 2;

transmitting circuitry that transmits one or more first OFDM symbols including the plurality of first transmission symbols z1 from a first antenna, and transmits one or more second OFDM symbols including the plurality of second transmission symbols z2 from a second antenna, the one or more first OFDM symbols and the one or more second OFDM symbols that are transmitted at a same frequency and time.

3. A reception method executed by a reception apparatus, the reception method comprising:

receiving one or more first OFDM symbols and one or more second OFDM symbols, the one or more first OFDM symbols including a plurality of first transmission symbols z1, the one or more second OFDM symbols including a plurality of second transmission symbols z2; and

generating the plurality of first transmission symbols z1 by demodulating the one or more first OFDM symbols and the plurality of second transmission symbols z2 by demodulating the one or more second OFDM symbols, wherein

each of the one or more first OFDM symbols and the one or more second OFDM symbols that are transmitted at a same frequency and time from different antennas of a transmission apparatus,

the plurality of first transmission symbols z1 and the plurality of second transmission symbols z2 are generated by, with respect to a plurality of first modulated symbols s1 and a plurality of second modulated symbols s2, using any one of N matrices F[i] for each slot in the transmission apparatus,

N is an integer that is two,

the N matrices F[i] are regularly switched with two slots as one cycle, and

the N matrices F[i] satisfy

$$\mathbf{F}[i]=\frac{1}{\sqrt{2}}\begin{pmatrix} e^{j0} & e^{j0} \\ e^{j\frac{i\pi}{4}} & e^{j\left(\frac{i\pi}{4}+\pi\right)} \end{pmatrix}$$

i = 0, 2.

4. A reception apparatus comprising:

receiving circuitry that receives one or more first OFDM symbols and second OFDM symbols, the one or more first OFDM symbols including a plurality of first transmission symbols z1, the one or more second OFDM symbols including a plurality of second transmission symbols z2; and

demodulating circuitry that generates the plurality of first transmission symbols z1 by demodulating the one or more first OFDM symbols and the plurality of second transmission symbols z2 by demodulating the one or more second OFDM symbols, wherein

each of the one or more first OFDM symbols and the one or more second OFDM symbols that are transmitted at a same frequency and time from different antennas of a transmission apparatus,

the plurality of first transmission symbols z1 and the plurality of second transmission symbols z2 are generated by, with respect to a plurality of first modulated symbols s1 and a plurality of second modulated symbols s2, using any one of N matrices F[i] for each slot in the transmission apparatus,

N is an integer that is two,

the N matrices F[i] are regularly switched with two slots as one cycle, and

the N matrices F[i] satisfy

$$\mathbf{F}[i]=\frac{1}{\sqrt{2}}\begin{pmatrix} e^{j0} & e^{j0} \\ e^{j\frac{i\pi}{4}} & e^{j\left(\frac{i\pi}{4}+\pi\right)} \end{pmatrix}$$

i = 0, 2.