

CLAIMS

1. A signal generation method comprising:

phase-changing all of a plurality of baseband signals using each of a plurality of phase changing patterns, each of the plurality of phase changing patterns being different from each other; and

inverse-fast-Fourier-transforming each of the plurality of baseband signals to which the phase change is applied, to each of a plurality of OFDM transmission signals for transmission on a same frequency band and at a same time, wherein

the phase of each of the plurality of baseband signals is regularly changed according to each of the plurality of phase changing patterns for each sub carrier of the plurality of OFDM transmission signals,

each of the plurality of phase changing patterns having N phase change value candidates,

N being an integer greater than two, and

each candidate of the N phase change value candidates being selected at least once within a determined period.

2. A signal generation apparatus comprising:

phase change circuitry phase-changing all of a plurality of baseband signals using each of a plurality of phase changing patterns, each of the plurality of phase changing patterns being different from each other; and

inverse fast Fourier transform circuitry inverse-fast-Fourier-transforming each of the plurality of baseband signals to which the phase change is applied, to each of a plurality of OFDM transmission signals on a same frequency band and at a same time, wherein

the phase of each of the plurality of baseband signals is regularly changed according to each of the plurality of phase changing patterns for each sub carrier of the plurality of OFDM transmission signals,

each of the plurality of phase changing patterns having N phase change value candidates,

N being an integer greater than two, and

each candidate of the N phase change value candidates being selected at least once within a determined period.

3. A signal demodulation method for demodulating a reception signal obtained by receiving a plurality of OFDM transmission signals, the signal demodulation method comprising:

obtaining the plurality of OFDM transmission signals, wherein

the plurality of OFDM transmission signals are generated by phase-changing all of a plurality of baseband signals using each of a plurality of phase changing patterns, and inverse-fast-Fourier-transforming each of the plurality of baseband signals to which the phase change is applied, to each of the plurality of OFDM transmission signals for transmission on a same frequency band and at a same time, each of the plurality of phase changing patterns being different from each other, and

the phase of each of the plurality of baseband signals is regularly changed according to each of the plurality of phase changing patterns for each subcarrier of the plurality of OFDM transmission signals, each of the plurality of phase changing patterns having N phase change value candidates, N being an integer greater than two, and each candidate of the N phase change value candidates being selected at least once within a determined period; and demodulating the reception signal from the plurality of OFDM transmission signals.

4. A signal demodulation apparatus for demodulating a reception signal obtained by receiving a plurality of OFDM transmission signals, the signal demodulation apparatus comprising:

reception circuitry obtaining the plurality of OFDM transmission signals, wherein the plurality of OFDM transmission signals are generated by phase-changing all of a plurality of baseband signals using each of a plurality of phase changing patterns, and inverse-fast-Fourier-transforming each of the plurality of baseband signals to which the phase change is applied, to each of the plurality of OFDM transmission signals for transmission on a same frequency band and at a same time, each of the plurality of phase changing patterns being different from each other, and

the phase of each of the plurality of baseband signals is regularly changed according to each of the plurality of phase changing patterns for each sub carrier of the plurality of OFDM transmission signals, each of the plurality of phase changing patterns having N phase change value candidates, N being an integer greater than two, and each candidate of the N phase change value candidates being selected at least once within a determined period; and demodulate circuitry demodulating the reception signal from the plurality of OFDM transmission signals.